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DIPHTHERIA.

—BY—

ROLLIN R. GREGG, M. D.

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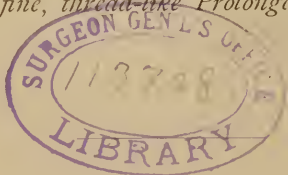
CAUSE, NATURE, AND TREATMENT.

BY

ROLLIN R. GREGG, M. D.

*Spherical Bacteria, or Micrococci of Diphtheria, shown
to be only "Molecular Granules" of Fibrin.*

*Rod-like Bacteria, Bacterium termo, shown to be Mol-
ecular Granules of Fibrin united into Fibrils, or
"fine, thread-like Prolongations."*



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Additional facts bearing upon the identity of Spherical Bacteria and Molecular granules of Fibrin.

Two of the most essential facts bearing upon the solution of the mystery of so-called Bacteria, in Diphtheria, have evidently hitherto been entirely overlooked, namely :

First.—In Diphtheria there appears never to have been any recognition of the existence of the molecular granules into which the excess of fibrin *always* first organizes (before it can form the fibrils that constitute the membrane), excepting to wrongly call them spherical bacteria, or micrococci. And, yet, fibrin never coagulates or fibrillates, in any case, to form membranes, without first coagulating into said molecular granules, and these into fibrils to then make the membranes.

Had the former, or the molecular granules, been considered what they really are, simply as the first step in the coagulation of fibrin, they would never have been given the false name of spherical bacteria, or micrococci; and had the latter, or fibrils, been properly recognized as the next step in the organization of fibrin into membrane they would never have been falsely called rod-like bacteria. This, it is hoped and believed, is fully explained in this volume; but

Secondly.—What was overlooked until too late to insert, is this: When the membranes of Diphtheria are breaking down, preparatory to being resolved back into their native elements, the fibrin of which they are composed disintegrates in the *inverse* order of its being built up, namely: first, into the fibrils which aggregated together constitute the membrane, and next into molecules that constitute the fibrils. Hence, we have these two sources of both spherical and rod-like bacteria; one while the fibrin is organizing into the membranes, the other while the membranes are breaking down into their fibrils and molecules, either or both of which furnish the so-called bacteria, especially the spherical, in infinite numbers, in all cases of Diphtheria. Spherical bacteria found in the blood, and swarming in all congested parts, are the forming stage of the excess of fibrin, while all bacteria found in or about degenerating membranes are from the disintegrating stages of fibrin.

Now, let it be understood that these ideas are not conceived to bolster up a mere theory, but they are the actual facts as they occur in every case of this disease; and must be taken into consideration before this important question can be settled.

Proper recognition has been taken of exuded fibrin in diphtheria *after* its organization into the membranes, and somewhat so of the fibrils of it; but none, whatever, it is repeated, of the forming and disintegrating stages of it; or of the molecules of either of those stages; which, as will be seen, solve the whole mystery of bacteria, and show this subject to be one of the most simple in Pathology.

In conclusion, how hazardous to many households has been that treatment, which has been so violent, and so persisted in, to destroy the assumed vegetable fungi, which never existed excepting in the imagination. That treatment has, however, destroyed what did exist, namely, the patients themselves, by the tens of thousands; but let us hope the end of all that is near at hand, now that facts as they exist have been recognized.

664 Main St., Buffalo, N. Y.

R. R. GREGG, M. D.

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INTRODUCTION.

In 1862, while engaged in an extended series of investigations of other pathological and ætiological questions, I fell upon evidences, satisfactory to my own mind, that the cause and nature of diphtheria differed most essentially, in many respects, from the teachings of the profession then, or, indeed, at any time since; and which, if true, demanded a radical change of treatment from what prevailed in either school then, or since, to better correspond with what appeared to be the truer nature of the disease.

During the three succeeding years, however, or from 1862 to 1865, and until I had secured all the evidence then to be obtained to sustain the new pathological and ætiological views, I did not feel justified in changing the method of treatment I had been taught and previously followed quite successfully in this malady. That method excluded local treatment of any and all kinds, and was in other respects what would generally be considered strictly Homœopathic; but, aside from avoiding topical applications, it was not the practice taught by Hahnemann, which so many, even of our own school, affect to despise, or, at least, to condemn.

Under that treatment, and during those three years, I lost several important cases, notwithstanding a previous much better success, until it came to be a great dread to me to be called to patients suffering from diphtheria. Watching those I lost, however, carefully, through all phases of their disease, until they died, and seeing how long nearly all of them held out, and how much they suffered before yielding life, it seemed to me that if the practice of medicine was what it ought to be, or, at least, that if those patients had been *rightly* treated, all but one of them could have been cured, and that all similar cases should be saved.

This conviction becoming thoroughly fastened upon my mind, I read Hahnemann, Bonninghausen, and other of the like reliable writers of our school more intently, and reflected more earnestly and deeply upon their teachings than ever before, until I felt justified in at least trying the method of treating cases of the disease that might subsequently come under my care, in accordance with its truer pathology, and upon the strictest Hahnemannian principles of Homœopathy. Experience, too, in the successful treatment, under those principles, of other of the gravest forms of disease that had in the meantime been gained, fortified me still more in my resolution, until, in 1865, I put the matter to the severest test in numbers of serious cases of diphtheria, and, from the time of making that new departure to the present moment, I have not lost a case of the disease, however severe (with one possible exception, explained at the close of this volume under the head of "Corrections"), out of several hun-

dred treated; and I have had no unpleasant *sequelæ* arise or follow in a single case.

This, I am well aware, will be looked upon as a very extravagant claim. That is unavoidable. But let none dismiss it as a vain or idle boast, for it is simply and only the truth; and being that, I feel not only fully justified in stating it, but that it is my duty to lay all the essential facts in my possession, bearing upon the cause and nature, as well as upon the treatment of diphtheria, before the profession. No harm, certainly, can come of their being fully and carefully considered, and that is all I ask.

Let all, however, bear in mind that this is not put forth as an exhaustive work upon any branch of the subject; on the contrary, it is only designed to be merely suggestive on most points, until it shall be demonstrated that a more complete work is demanded, though it is hoped that all essential facts are sufficiently elaborated to establish, or, at least, to show, reasonable grounds for the claims made. If, however, more proof should be demanded upon any fundamental question herein raised, all are assured that it is much more ample upon all points than my limited time and the narrow limits of these pages will allow of being presented.

The literary defects of the work, it is feared, will be found far too numerous for either the pleasure of the reader or the future comfort of the author; but physicians generally will, no doubt, be better pleased with *facts* that will acquaint them more fully with the true nature of diphtheria, and especially that will enable them to attain better success in its treatment, than

with the mere apparel in which those facts are clothed, however attractive that might be. And with regard to all assumed facts, the utmost pains has been taken, not only that they should be correct, but that the more critically and thoroughly they shall be investigated and tested in practice, the more reliable they will be found.

And now, in conclusion, I await with confidence, but not wholly without anxiety, the results of others' putting the teachings of this volume to the severest tests to which they can and should be subjected. Nothing is of real value that does not stand the trial of successful application. But no one must hold me responsible for unfortunate results of violations of instructions upon any point of treatment, under the belief that they can improve upon it by this and that radical deviation from the directions given. In all the fifteen years of successful treatment referred to, these teachings have been put to the most severe trials that have arisen under my own observation, and having been implicitly followed, and never failed me in a single case, at least to the extent of the loss of a life, or of serious *sequelæ* in any instance, I can but feel that they should have a much wider and fuller application under the careful scrutiny of all.

Hoping for the same happy results to those who may carry these new teachings into practice, I remain sincerely devoted to the true progress of medical science, in whatever field.

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DIPHThERIA.

Its antiquity.

Although the disease we now call diphtheria was not given this specific name until little more than half a century ago, it is, nevertheless, as we learn from several writers, an epidemic disease as old as any that ever afflicted mankind. Hippocrates and his contemporaries left evidence in their writings of their familiarity with the disease under the name *Malum Ægyptiacum*; and Aretæus, at the close of the first century after Christ, as Oertel tells us, “gives a most characteristic description of the *Malum Ægyptiacum*, in which he especially emphasizes the fact that the tonsils are covered with ‘quodam concreto humore albo,’ which spreads over the tongue and gums.”

But, aside from such testimony, the facts to be presented in the following pages will show that this disease must be as old as the human race itself; or, at least, as old as the more serious catarrhal affections of the race; for the blood of man must necessarily have been the same in its composition in health, and that composition affected similarly by

corresponding diseased conditions, at first as now ; hence, similar results must have been developed, by like causes, then, as at all times since. And it is to the blood, and the disproportion among its several constituents, wrought by various morbid influences, that we must go, as we shall see, for a thorough knowledge of this, as well as of many other diseases.

Prevalence of the Disease.

Since the days of Hippocrates and Aretæus, diphtheria has prevailed at times as an epidemic in every civilized nation of the earth ; and probably in each, during every century since, had we accurate records to show the facts as they actually occurred. That it did so prevail would appear all the more probable, from the fact that there have been numerous epidemics of diphtheria in France, England, Holland, Germany, and other European nations, during this century ; and we have had many just such epidemics in this country, within the same period, under the various names of “putrid sore throat,” “black-tongue,” “malignant quinsy,” etc. ; all of which, as we now know, were nothing more nor less than what is at present called diphtheria.

The so-called “black-tongue” is included in the above list, as there can be little doubt that many, if not all the, epidemics of it were really diphtheria, though it was called malignant erysipelas, as well as black-tongue, then, and described under that name by a number of observers. We have had no epidemics of disease under either of these designations, however, reported, since the name diphtheria was more fully adopted, though before that they were quite common ; which would appear to be another evidence that they were generally, if not always, diphtheritic in character.

Again, diphtheria has prevailed with almost equal severity and fatality in every latitude, from the tropics to the frigid zone; at every altitude, from the level of the sea to the highest mountain ranges where men have ever dwelt; in the valleys and upon the hill-tops; with all classes and conditions of men, from the lowest to the highest; with every race, clan and kin; in the driest, as well as in the dampest, climates, and under every other atmospheric condition; in the spring-time, the summer, autumn and winter; the most intense cold has never retarded, nor the highest degree of summer-heat ever promoted, its spread, nor *vice versa*; and, finally, it has often shown almost equal disregard of every sanitary regulation from the best, all the way down to the worst, or none at all. All these multitudinous conditions, I repeat, have apparently made little or no difference with the origin, spread, or fatality of the disease.

One fact ever present.

But while such an infinite diversity of circumstances and surroundings have attended the various epidemics of diphtheria that have afflicted mankind, there is just one fact, or one series of facts, and *one only*, that has been universally present, not only in every epidemic, but in every sporadic case of the disease that ever occurred, from the very first case up to those being stricken at the present moment; and a series of facts, too, upon which we can fasten without doubt or hesitation, to show us the true cause and nature of this scourge; and which will also tell us as clearly what we must not do in its treatment, if we would avoid adding to its fatality and its terrors.

That series of facts is as follows: There never occurred a case of diphtheria without an irritation of some one or more of the mucous membranes—generally, of course, of

that of the throat and nostrils, but frequently also of others as well; and there never occurred an irritation of a mucous membrane without its causing a waste of albumen through it from the blood; and never was albumen abstracted from the blood in that way, that is, wasted, without destroying that normal proportion among the several constituents of the blood, which is indispensable to health, and leaving in the blood-vessels a relative excess of water, blood corpuscles, fibrin, salts and fatty matters, to disturb and derange the operations of life more or less seriously, until such excess is expelled entirely from the system, or death is the result. Often it is the rapid destruction of the proportions of the elements of the blood, by a profuse and rapid waste of albumen, that causes speedy death in diphtheria, no less than in other diseases.

If it be true, then, that the one simple series of facts named has been universal in diphtheria, giving character to every case of it that ever occurred, whether epidemic or sporadic, and that no other series of facts can be cited to have such universal, or even general, application to various epidemics, to say nothing of sporadic cases, it is clearly to those facts that we must look for the cause of the disease. That that series of facts has been ever present in diphtheria we shall see as we proceed.

Let not those, now, who know anything of my views concerning the cause of consumption, charge me with seeking to restrict nature to one narrow groove in the manifestation of all her phenomena, or asserting one cause for all diseases, or attempting to reduce all morbid results to one standard or line of action. I seek or attempt nothing, excepting, simply, to follow where nature leads; and this we must all do in *every* instance, if we would avoid disaster from our dealings with her.

The action of colds in developing diphtheria, by set-

tling upon the mucous membrane of the air passages, and exciting a profuse secretion of mucus and waste of albumen therefrom; the origin of sporadic cases of the disease; and other secondary questions will be explained in a subsequent section, after more essential points are cleared up.

THE WASTE OF ALBUMEN.

That there is a profuse waste of albumen from the system in diphtheria, as just claimed, the following facts establish beyond all question:

All authors agree that diphtheria is much the most prevalent among—and, also, far more fatal with—scrofulous children, than with those who are not scrofulous. If so, what, then, is scrofula? Let a quotation from the fourth volume of St. George's Hospital Reports give the answer:

“Scrofula is a disease of children which manifests itself by a peculiar vulnerability and proneness of the subject to chronic inflammation of mucous membrane and skin.”

Prof. Frank H. Hamilton, of New York, in speaking of scrofula, or struma, says:

“The strumous patient, like a plant growing in a cellar, succulent and prone to early decay, was exceedingly liable to disease. * * * In infancy, the condition manifested itself by tegumentary eruptions, such as were seen upon the face, head, behind the ears, etc. As the child advanced in life, the condition manifested itself in other structures, more especially the mucous membranes, and he suffered from various catarrhal affections.”—*New York Medical Record*, April 28th, 1877, page 266.

Of the consequences of catarrhal affections in promoting

diphtheria, Oertel, in vol. 1st, page 586, of Ziemssen's Cyclopedia, says :

"Finally, the presence of a *catarrhal affection* of the mucous membrane, as one often has opportunity of seeing, seems to predispose to diphtheritic infection."

And that all catarrhal affections, and even simple irritations, cause a flow of albumen from, or through, any and every mucous membrane so affected, is shown by the following from Prof. C. G. Lehmann's Physiological Chemistry, vol. 2d, page 85, American edition, where this most reliable author expresses himself as follows :

"Daily experience shows how rapidly the number of so-called mucous corpuscles increases with the *slightest* irritation of the mucous membrane; and we know from the researches of Julius Vogel that an irritated mucous membrane secretes not only such corpuscles, but also an albuminous coagulable matter, however much it may be disposed to form true transudations and exudations."

The following, from the same volume, page 88, also asserts the same :

"We have already referred to the observation of Julius Vogel, which admits so readily of confirmation, that the mucous secreted in catarrhal irritation of the mucous membrane exhibits a varying quantity of albumen."

Indeed, that all mucus, that is to say, the principal animal ingredient of it, is nothing more nor less than albumen is shown by a quotation from Carpenter's Physiology, page 233, where, in speaking of mucus, he says :

"Its chief organic constituent is a substance termed *mucin*, to which the characteristic properties of the secretion are due. This appears to be an albuminous compound, altered by the action of an alkali; for, as Dr. Babington has shown, any albuminous fluid may be made to present the peculiar viscosity of mucus by treating it with liquor potassæ."

Physicians of experience, who have also observed carefully, will not require proof of the early and more or

less free flow of mucus, even in the mildest cases of diphtheria; while, as all know, there is no symptom more prominent than the excessive secretion of mucus in the more violent types of the disease.

From all this, therefore, it will be seen how great must be the waste of albumen from the system in all severe cases of diphtheria, while the less severe cases waste it in a degree corresponding to the quantity of mucous discharges therein. And that all the albumen so discharged is an abstraction, or loss of just so much of it from the blood, is shown by the fact that there is no other possible source from which it can be drawn, but from the blood. But upon this point, even, we have direct and most positive proof from Carpenter's Physiology, page 189, where, in speaking of the discharge of albumen from the kidneys in Bright's disease, he uses this terse language :

“According to Andral, the diminution in the amount of albumen in the serum is exactly proportional to the quantity contained in the urine.”

If such is the case, then, in regard to the waste of this constituent from the blood through the kidneys, it must be equally so when it is discharged from the throat, nostrils, or other internal parts or organs. Of this fact there can be no question. Indeed, such is the anatomy and physiology of the circulation and nutrition in the human body, that albumen is even wasted through the skin under similar conditions. A few familiar facts will show this. As is so well known, all the material for each of the constituents of the blood is passed through the digestive organs into the circulation. When once in the circulation there is no outlet for any part of either of the constituents, excepting as the heart propels all along through the arteries to the capillaries, through the walls of which, and there only, the serum of the blood, albumen and all, pours readily and apparently

without obstruction, into the interstitial spaces everywhere surrounding the capillaries. These interstitial spaces communicate with each other in every direction, as though they were minute but very tortuous anastomosing vessels, up to and through the skin, terminating in open mouths directly against the under surface of the epidermis, or scarf-skin, of the whole exterior of the body. And the same arrangement is kept internally with all the organs lined with a mucous membrane, the open mouths of the interstitial spaces there being closed, also, and only, by the epithelium, or scarf-skin, of that surface. Were it not, therefore, for the epidermis, all, or nearly all, the serum of the blood, including its albumen, that is poured out into any part of the muscular system for the nutrition of those parts, would flow out upon the surface of the body and be wasted; and but for the epithelium, precisely the same thing would take place internally, thus wasting all the material that is used in nutrition, and very soon take life.

The facts, as claimed, in regard to the skin, are shown by a very familiar example. For instance, the epidermis cannot be taken off from any part of the surface of the body, or raised from its basement membrane, the derma, as in raising a blister, without albumen, that is, the serum of the blood containing its full proportion of albumen, flowing out readily and freely through the uncapped interstitial spaces, and filling the blister. There is, however, this difference to be considered between the two surfaces passing serum or albumen through them. As we have seen, the latter is secreted by the mucous membranes, in consequence of simple, or the "slightest irritations" thereof, without abrasions, which is not the case with the skin, as this must always be abraded of its epidermis to allow of such waste through it. And the albumen so discharged is always more watery, or more like

pure serum, when secreted in a blister upon the skin, than when wasted through a mucous membrane. When a large tract of the epidermis is removed from the skin, as in extensive scalds or burns, a great quantity of serum is wasted, and the results of that alone might be fatal, even where the nervous shock was well borne, or would finally be overcome.

This comparison between the outer and inner integuments of the body is made to show how and why it is that albumen is discharged through the latter in all cases under such circumstances, and that it is impossible for the epithelium to be abraded from the mucous surface of any internal organ without such discharge therefrom, the same as through the kidneys in Bright's disease.

Let it, therefore, be henceforth remembered in connection with this subject, that in the very nature of things, whether the epidermis be abraded from any portion of the exterior of our bodies, or whether there be abrasions, or only simple irritations, of the epithelium of any of the mucous membranes thereof, both alike are always, without exception, attended by a waste of albumen from the system, and by more or less serious consequences, just in proportion to the quantity of that constituent lost. This establishes a principle, or fact, that is universal in nature, and must be ever kept in mind, if we would fully comprehend the consequences of such abrasions.

And in all cases, I repeat, whether albumen is lost through the skin, or through the mucous membrane of any internal organ, it is ever and always a waste of just so much of it from the blood, there being no other source of supply. Nor must we overlook the fact in this connection that from whatever organ or part albumen is excreted, the consequences must be nearly, if not quite, as serious, as is its loss through the kidneys in Bright's disease—which all

know to be one of the most deadly diseases that afflicts our race ; and wholly so, because of this waste and its various effects.

The mucous membranes being so much more frequently subject to irritations and abrasions than the skin, or at least, the results of simple irritations upon them being so much more serious than upon the skin, it will be seen of what infinite importance it is that they be protected against such injuries, or healed of them as soon as may be whenever and wherever they occur. If abrasions of mucous surfaces be at all extensive, and are allowed to continue, life is sooner or later the invariable sacrifice.

But full as the foregoing proof is, it is by no means all there is to show a waste of albumen in diphtheria, as will be seen by the following from Oertel, who says, in speaking of the "course and termination" of the disease, page 603, vol. 1st, Ziemssen :

"According to Eberth's experience, two out of every three cases of diphtheria, on the average, are affected with albuminuria."

And, again, on page 648, same volume, he further says :

"The kidneys are attacked by the diphtheritic process at the beginning, and quite often with the same intensity as is the mucous membrane. The albuminuria, which often appears after a few hours, furnishes, at the bed-side, an accurate diagnosis of the affection of the kidneys."

Here we see is still another source of waste of this most vital element of the blood, in addition to all that is wasted in the catarrhal discharges from the throat, nostrils, larynx, and bronchi, in this disease. Nor is this all. The mucous membrane of the alimentary canal is frequently irritated in some portion of it in diphtheria, and when that is the case, it constitutes still another source of waste.

Comparative danger of diphtheria and Bright's disease.

It is, of course, unnecessary to dwell here upon the dangers of Bright's disease, with which all are so familiar, nor yet upon its cause and nature, beyond the primary and simple fact that it is the discharge of albumen through the kidneys in this disease, and its loss from the system, that destroys nearly every patient suffering from it in its chronic form, and is very dangerous in its acute form. But why so fatal or dangerous? Because, first, it is a loss of a portion of the most important of all the elements of life and physical strength; and, secondly, because it destroys the normal proportions among the several constituents of the blood, and, finally, life itself.

Can a similar waste of the same element of the blood do less in any other disease, or can it be much less dangerous through any other organ?

Grant that a constitutional weakness, and also various diseases of the organs of digestion, may, or actually do, interfere to a greater or less extent, in preventing the preparation of the components of the blood in the proper proportions; all the more need is there, that the albumen, which is almost the only support to the physical strength of animal life, should be retained, not wasted, and all the more certain is it death to the patient if it is wasted, as we see in Bright's disease.

Diphtheria being always an acute disease, it must not be understood that its mortality is here compared to that of *chronic* Bright's disease, which is always, or nearly always, fatal; but to acute Bright's disease, with the difference against the latter, perhaps, from urea being retained in the blood in some or many cases, and poisoning the brain and nervous system. And yet if Eberth's assertion be true that two out of every three patients suffering from

diphtheria are affected with albuminuria as well, then, in that proportion, there is equal danger of poisoning by urea as there is in the same number of cases of acute Bright's disease, with the additional chances decidedly against the diphtheritic patients so affected, from the doubly exhausting processes of albuminuria and diphtheria existing and acting together in their systems.

Let us now turn our attention to some of the more immediate consequences of such waste, as bearing upon the subject under consideration.

CONSTITUENTS OF THE BLOOD THROWN INTO A DISPROPORTION.

Nothing can be more certain in nature than that the wonderful combination of organs, functions and laws, that constitute the marvelous mechanism of digestion, *was made for a purpose*, and that that purpose cannot be violated without more or less serious disaster, in accordance with the violation done. In other words, those proportions of the several constituents of the blood, which, in health, the complicated machinery of digestion introduces into the circulation, must be the proportions required to sustain health. And whatever disturbs or destroys said proportions, as for instance, the abstracting, that is wasting, of a part of one of those constituents, and leaving all the others in a relative excess in the vessels, must derange the system and cause disease to the extent to which such destruction is carried. This is but stating truisms, and yet it appears to be necessary to state them from the loose ideas, or rather the lamentable absence of ideas, in the profession, upon this vital subject.

Composition of human blood.

To understand more fully what must be the consequences of such a waste of albumen from the system, we must consult the composition of human blood. In one thousand parts of healthy blood there are of:

Albumen,	70. parts.
Water,	403. “
Blood Corpuscles, . . .	512. “
Fibrin,	2.2 “
Fatty Matters,	1.3 “
Salts,	6.03 “
Extractive Matters, . . .	5.47 “

1000.00

(The proportion of the blood corpuscles given in this table, is not that of their *dried residue*, but their amount as we find them circulating in the vessels, holding the requisite quantity of water to enable them to suitably perform their functions; which is the only way they should ever be considered, either in disease or health.)

The loss of one ounce of albumen would, therefore, according to the table, leave a relative excess in the circulation of:

Water,	5 $\frac{3}{4}$ ounces.
Blood Corpuscles, . . .	7 “
Fibrin,	15 grains.
Fatty Matters,	9 “
Salts,	41 “
Extractive Matters, . . .	37 “

This shows at a glance into what a serious disproportion the waste of even a single ounce of albumen must throw the constituents of the blood, and how that must derange many, if not all, the functions of life. And when the loss

of that constituent is much greater, and goes on from day to day, as we have seen by the evidence cited that it must in all severe cases of diphtheria, no logical mind can fail to see that complete harmony cannot be restored to the system, until the waste is stopped, and all the excess of each of the other constituents is cast out of the circulation, and the patient rid of their disturbing influence.

THE EXCESS OF FIBRIN.

The membrane of diphtheria, being the most constant and the most prominent of all the manifestations, or material developments of the disease, and always fibrinous in character, our concern for the present is more especially with the fifteen grains of fibrin left in a relative excess in the blood, for each and every ounce of albumen abnormally withdrawn therefrom, than with the excess of the other constituents; and which, if we follow closely, will be seen to have the most important bearing upon our subject of any question in connection with it. It will be found for instance, first, that this surplus fibrin *must be expelled from the blood vessels* to avoid more immediately fatal results, that would arise if retained within them; and, secondly, that in diphtheria it is excreted upon the tonsils, fauces or other parts of the walls of the air passages, and constitutes the exudation or membrane there formed—said membrane being one of the most alarming consequences of the disease in most cases.

Were this superfluous fibrin not expelled to form the membrane, but retained in the blood-vessels instead, it would coagulate therein, as we shall soon see, and lead to other and still greater dangers, in nearly all cases, than does its expulsion upon the tonsils.

Under but one condition is the danger nearly so great from the expulsion of the fibrin from the vessels and its organization into membranes upon any living parts, as is its retention and coagulation in the general circulation; and that is when its excess is so great, from the profuse waste of albumen, that it is poured out rapidly and in such quantity into the tonsils, etc., as to arrest circulation therein, and by its obstructions to that and to the nutrition of the parts, cause gangrene and speedy death, as occurs in those rapidly fatal cases from gangrene with which physicians of experience are more or less familiar. But these cases are rare.

Gangrenous results, however, whether of this rapid character, or those of slower progress, are no doubt greatly aided in the following manner: The vessels of the tonsils are congested by the excess of blood corpuscles (left in them by the same loss of albumen), which more completely arrests both circulation and nutrition therein than fibrin alone could; and such corpuscles being now, or soon, dead or dying bodies, with the greatest tendency to rapid decomposition, must greatly aid in hastening mortification and a fatal issue.

Lehmann, vol. 1st, page 328, says of globulin, which, as all know, constitutes the greater portion of all blood-globules:

“It decomposes and becomes putrid much more readily than the other protein compounds.”

Gangrene is, therefore, no doubt as much or more the result of putrefying blood-globules, than of the exudation of fibrin, in however great a quantity.

When the excess of fibrin is excreted more slowly, and the congestion by the excess of corpuscles is not so great as to arrest local circulation and nutrition to the extent of causing gangrene, then we have a more lingering case, with

ulceration and many other conditions, and death or recovery, according to the patient's feebleness, or vigor of constitution, in resisting the progress of the disease.

Quite commonly the redundant fibrin is excreted from the blood in the same manner, and for the same reasons, into the larynx or trachea, as into the pharynx, often into the nostrils, sometimes upon the lips, behind the ears, or upon abraded surfaces on the face or neck, about the anus, or upon the genital organs of the female, etc., and organizes into the diphtheritic patches or exudations there seen, which complicate the case according to the part attacked, and the size or extent of the exudations.

Thrombosis, or heart-clots of fibrin.

I have said that the excess of fibrin must be expelled from the blood-vessels to avoid more immediately fatal results. This will be made self-evident by the statement of a few facts. When fibrin is allowed to accumulate in the circulation much above its normal proportion, it shows a strong tendency to coagulate, or fibrillate, and form clots, or thrombi, called also emboli, that cause the most dangerous and rapidly fatal complications; and this is just what does occur in some cases of diphtheria. That is to say, the fibrin is brought so rapidly into excess in some cases, by the profuse waste of albumen, or, in others, such excess is excreted so slowly as to leave a large quantity of it in the blood, when it organizes into so-called thrombi of sufficient size to entirely obstruct one of the cavities of the heart, or the pulmonary artery, and instantly take life. Or it will organize into smaller clots, which will be carried along by the current of blood, until they are lodged in some of the smaller arteries to cause embolism, and soon take life in that way. Were it not that the superfluous fibrin, or a great portion of it, is excreted in diphtheria, *every*

severe case would be more or less speedily fatal, from the coagulation of it in the circulation and the effects of the coagula.

The absolute necessity that actually exists, will, therefore, be seen, for such superfluity to be expelled from the blood-vessels to avoid almost certain death in every case; and also to give more time for the *vis medicatrix nature*, or the physician, to stop the cause and cure the case. And nature generally, in fact almost always, succeeds in causing such expulsion, if not thwarted in her purposes by harsh medicines, or other violent or wrong treatment.

Diphtheria in connection with many diseases.

But all this by no means covers the whole field of diphtheria, nor does it furnish us with the full record of the doings of fibrin, when brought into excess in the blood. Diphtheria, or an exudation of the true diphtheritic membrane, (in other words, an excretion and organization of superfluous fibrin,) complicates many diseases which are far removed from it in all other respects. There is "diphtheria of the intestinal mucous membrane," in some of the severe cases of typhoid fever; diphtheria of the intestines, also, in connection with dysentery; diphtheria of the uterus and of the lungs in cholera; diphtheria of the pharynx, larynx, and bronchi, in some cases of measles, and more rarely of the eyelids, the prepuce, and genital organs of the female, in this disease; diphtheria very commonly in scarlet fever; diphtheria in small-pox; diphtheria in mercurial stomatitis; and diphtheria in connection with other diseased conditions.—*Ziemssen*.

Now, the question arises, why does, or should, diphtheria complicate all these diverse diseases? Simply because fibrin is brought into excess in the blood in every one of them, and is excreted from the vessels upon the mucous

membranes so affected, thereby producing the diphtheritic membrane,—a result which nature unquestionably enforces here as she does in diphtheria proper, to avoid its forming in clots within the blood-vessels that would take life also, in nearly all these cases; but which is avoided in most of them by such exudation. And why is fibrin brought into excess in all these diseases? Because albumen is wasted from the blood in all of them excepting cholera.

The waste of albumen through the mucous membrane of the intestines is often profuse in typhoid fever; is always very profuse through the rectum and colon in severe cases of dysentery; and it is also profuse through the mucous membrane of the air passages, and sometimes of the intestinal canal, in measles; very profuse from the throat, or pharynx, and sometimes also from the kidneys in scarlet fever; and it is also wasted in no small quantity from either the respiratory organs, or the alimentary canal, or both, in severe cases of small-pox.—*Lehmann's Physiological Chemistry, Copeland's Medical Directory, etc.*

The one exception of cholera not wasting albumen stands alone in the list, but does not in the least invalidate the other facts, or the claims made. Indeed, it strengthens all, and is better proof in this connection than almost any other one point could be; for, in cholera, it is the water of the blood, or of the serum, that is profusely wasted, not albumen; and this waste of water leaves the fibrin in a relative excess in the blood-vessels, just the same as though it were albumen that were lost; and the fibrin demeans itself in identically the same way, whatever the cause that brought it into excess; simply for the reason that it is fibrin in excess, and must be expelled from the blood to avoid its coagulating therein and causing thrombosis, or embolism; and when expelled upon any living surface, it will organize into a membrane thereon, without reference to what the other diseased conditions may be.

What is done with the excess of fibrin in other than diphtheritic diseases.

In Bright's disease of the kidneys, where albumen is often discharged so freely, from these organs, a greater or less portion of the superfluous fibrin left, is excreted into the uriniferous tubules, where it coagulates and forms casts of these, which casts are washed away and carried off in the urine, but their places are immediately supplied by more fibrin, which coagulates and is washed away in its turn, and so the process goes on being repeated until the case is cured, or these organs destroyed. It is no doubt also a fact in many cases, that a portion of the excess of fibrin is washed away and carried off in the molecular granules (without further organization), into which, as we shall soon see, it always first coagulates, before forming fibrils. And, moreover, some of it may well be carried off in a fluid state in the urine in some or many cases.

But there are still other facts to account for the disposition made of the superfluous fibrin, in many cases of Bright's disease; which facts are not wholly uninformative, or inapplicable to diphtheria.

Wood says, vol. 2d, page 544:

"The British writers upon Bright's disease speak of a strong tendency which it has exhibited, within their observation, to favor the development of inflammation in other parts of the body, especially the serous membranes. The plura, peritoneum, and pericardium are attacked, in relation to frequency, in the order in which they are here placed; and the arachnoid is sometimes affected."

Now, why should this disease of the kidneys seek and single out from all others, these remote membranes,—and especially the delicate arachnoid—to inflame them and leave many, or all, parts and tissues much nearer at hand entirely untouched? It does so, for the reason that all of said mem-

branes are constructed principally of fibrin ; and nature, in many cases, directs the superfluity of this constituent of the blood, when brought into excess therein, to those parts or tissues where a portion of it naturally belongs, to expel it from the blood-vessels ; and it being poured out there in excess of the needs of the parts, necessarily disturbs, irritates and inflames them, and forms fibrinous bands and adhesions thereon, as another means of disposing of such excess.

“Chronic rheumatism is said to be very frequent and obstinate in the chronic disease of the kidney.” And why? Because the membranes of the joints are also serous and fibrinous, and it is to them, also, in some cases that the excess of fibrin is determined and causes the trouble.

Cardiac disease is, moreover, a “very frequent associate of Bright’s malady,” and the educated physician will not require to be told that the heart is invested externally, and lined internally in all its cavities, with a serous membrane. Such being the facts, then, how natural that more or less of the redundant fibrin should be directed to this investing and lining membrane of the heart, in some, or even many cases, where a certain proportion of it is normally required, and being secreted there in an excessive quantity, irritates and thickens said membrane, especially that covering the valves, until the whole organ becomes more or less involved, through both dynamic and mechanical effects.

Meningeal irritations or inflammation, pleurisy, peritonitis, pericarditis and enlargement of the heart, chronic and acute rheumatism, and the like, or serious threatenings of them, are not unfrequent attendants of, or successors to, diphtheria, as well as of Bright’s disease ; and now we see why this near relationship in these effects, from two such dissimilar primary diseases,—the redundancy of fibrin, and its exudation into or upon the serous membranes, being here, too, the cause of such results in diphtheria.

Thus it will be seen into what order and harmony these simple facts reduce what was before a most incongruous medley of apparently accidental and unaccountable results, in all cases where fibrin is found in excess in the blood, without reference to what the other diseased conditions may be.

Furthermore, in lung diseases, especially in bronchitis, pneumonia and phthisis, where albumen is so profusely wasted in the expectoration, the redundant fibrin is excreted in some instances into the bronchi, forming casts of these that are sometimes thrown off, looking like the branches of a shrub, and corresponding with the branching of the bronchi. But in phthisis it is universally the case that more or less of the excess of fibrin is excreted into or upon the pleura, and causes, or rather organizes into, the plates, membranes, or bands that adhere the two surfaces of the pleura together, or the lungs to the heart in consumption. M. Louis says that of one hundred and twelve cases of phthisis examined by him, there was only one in which such adhesions did not exist, to a greater or lesser extent. In bronchitis, pneumonia, and especially pleurisy, this same result is often brought about. And in all these cases, no one will deny that the false membranes are fibrin or fibrinous in character; then why should there be any question as to the nature of the membrane in diphtheria, if of fibrin, which no one disputes? And why a doubt as to its exact meaning, or why a strained effort to throw the whole subject of diphtheria under a cloud of mystery by giving the exudations the false name of *bacteria*, to only add terror to its very name? Of course this would not have been done excepting under a misconception of the true nature of the exudation.

If the superfluous fibrin is expelled from the circulation, for a purpose, in any one of these diseases, as it must be,

or that result would not be so uniform as in some of them, then it must be expelled in all of them for a like or similar reason. And it being so expelled, it is our duty as scientific physicians to follow it closely, and see just what it does, and what its dangers.

Malignancy of fibrinous membranes.

Should the foregoing conclusions be objected to, on the ground that the membrane of diphtheria is more malignant, than is the membrane in pleuritic adhesions, or the fibrinous casts of the uriniferous tubules, the answer is not difficult. First, the exudation of fibrin upon the tonsils is not a more malignant, or, at least, not a more fatal complication, than is the exudation of fibrin into the uriniferous tubules, in Bright's disease of the kidneys. But, secondly, and what is more to the point, the pleura is fibrinous as just said of all serous membranes, while the mucous membranes are not in the least so; and it is a universal fact in all forms of morbid growths, or exudations, that if the growth, or exudation, is of materials which naturally belong to the part and are simply developed in excess in it, the effect is not malignant in character; whereas, if said materials are entirely foreign to the part or tissue, the resulting morbid growth is always more or less malignant.

The pleura being of fibrin, the secretion and organization of more fibrin in, or upon it, does not often, if ever, result in what we properly call malignant action, though it may prove fatal. The mucous membranes not being of fibrin, and this being entirely foreign to their structure, if it is thrown out into, or upon them, and there organizes, there must necessarily be much greater irritation excited by its presence than though it naturally belonged there, and malignant action of a more or less serious character result from it.

It should be said here, furthermore, in passing, that the mucous membranes, as we see in the exudations of diphtheria, in the fibrinous casts of the uriniferous tubules in Bright's disease, in the membrane of croup, and the fibrinous casts of the bronchi, and in all the diphtheritic complications of the several diseases named, furnish almost, if not quite, as natural an outlet for the surplus fibrin, though they are not constructed of it, as do the serous membranes, which are. This, however, is evidently not from natural selection, but from the fact that the point or surface where the albumen is lost, is the place where surplus fibrin is left in the greatest abundance, and where, the vessels being greatly congested, and the vitality in part already overcome, it will be expelled as readily, often more so, perhaps, than into or upon healthy parts, that would show resistance to the reception of an excess of an element, even though that naturally belonged there in less amount.

THE BACTERIA THEORY.

The volume of proof given, therefore, if it means anything, certainly establishes the fact that the membrane of diphtheria in all its forms, and all truly diphtheritic exudations whatsoever, and wherever located or found, are nothing more or less than fibrin. Indeed, no writer denies or disputes that they are fibrinous in character. Even those who teach the bacteria theory concede the fact, as will be seen by the following from Oertel, vol. 1st, page 602, Ziemssen, where, after describing the first formation of the membrane, the results of its removal, etc., he says:

“More frequently a second fibrinous membrane forms over these spots, and thus a second crop of false membranes is produced.”

And in several other instances he speaks of this mem-

brane as fibrinous; so it must be conceded as beyond question that all of said membranes are constituted in great part, if not wholly, of fibrin. What can be the need, then, or the philosophy, in giving them another and entirely different character as well? That is, why call them vegetable, as all advocates of bacteria do, when they are wholly and purely animal in their structure and composition? Such anomalies, or rather, contradictions, do not exist in nature.

But what is more to our purpose, there is no substantial proof whatever, and never was, of the truth of the bacteria theory. Even the strongest advocates of it do not furnish the least reliable evidence of the truth of what they claim. Referring again to Oertel, page 587, vol. 1st, of Ziemssen, we find the following :

“The vegetable organisms which have been observed in the diphtheritic membranes of the fauces and air passages, as well as in other products of the disease, belong to a group which comprises forms of such exceeding minuteness—for they stand upon the very borders of the visible—that as yet we possess only the most unsatisfactory knowledge of their nature and organization.”

And on the same page, as well as in other parts of his essay, this same author expresses the greatest doubt whether the presence of the assumed vegetable organisms in diphtheria is “determined by accident and by the existence of a soil favorable to their growth, such as is found in the products of the disease; or whether they stand in a causal relation to the diphtheritic process.” A most unfortunate uncertainty in so important a matter.

Among the disbelievers in bacteria, the editor of the *New York Medical Record*, who is by no means an authority to be slightly discredited, expresses his entire unbelief in the whole bacteria theory; as will be seen by reference to the number of that journal, of Dec. 7th, 1878, page 457.

What his grounds are for discarding it, he does not there state, but he is none the less emphatic in asserting his disbelief.

But let us examine into this matter more closely. How can anything of the least reliability, as to the cause and nature of a disease, and, what is worse still, of its treatment, be predicated upon "forms of such *exceeding minuteness* that they stand upon the very borders of the visible;" or upon knowledge so unsatisfactory that no sane man would trust to it a moment in the most ordinary affairs of life? This is a question that involves multitudes of human lives, and great caution should be exercised until we know just what we are about, or what we have to combat, and how to combat it. Danger lurks in every move we make when dealing with human life if that move is not right, and disaster will follow in our footsteps, just so surely as we proceed to treatment upon a false assumption of the cause and nature of a disease, as will be more fully shown when we come to the treatment of the one under consideration.

But let us try to go to the bottom of this part of our subject, namely, the bacteria theory, as well as of all the rest, and leave nothing to doubt. There are appearances, and not wholly false appearances either, as to mere forms, that would seem to favor this theory. Before we can explain that, however, we must know the forms of these so-called bacteria. Oertel names the *classified* forms as follows:

"(1) Sphærobacteria (spherical bacteria) *i. e.*, micrococcus."

"(2) Microbacteria (rod-like bacteria); bacterium termo; less frequently, and only in the mouth and fauces, bacterium lineola."

"(3) Spirobacteria (cork-screw-shaped bacteria); spirillum tenue, spirillum undula."

Here, then, are the three essential and differing forms of

bacteria. The "unclassified forms" it seems unnecessary to consider, as they are of so much more rare occurrence than the first three, that the whole field will be amply covered if we can settle what these three are. That this is the correct view to take of this part of our subject, too, will be seen by the following from the same author also, on page 587, vol. 1st, Ziemssen. He says:

"Of the vegetable organisms, which Cohn classifies under the name of bacteria, and which he divides into four genera, with one or more species, there is one form in particular (the micrococcus) which penetrates the tissues, wherever a diphtheritic disease occurs, but is also accompanied by a second form (bacterium termo) in greater or less numbers. Other forms appear exclusively in the false membranes which form in the mouth and fauces, more rarely in those of the nose and deeper air-passages."

And by this from page 589, same vol., where he further says:

"I once observed a marked case of mercurial stomatitis, in which a grayish-white exudation, from two to three mm. in thickness, had formed on the lips, gums, inner surface of the cheeks, the tongue and fauces; this exudation on examination was found to contain almost solely leptothrix buccalis, spirillum tenue, and spirillum undula, together with bacterium termo, and bacterium lineola; as soon, however, as the patient was attacked with diphtheria of the mouth and fauces—which ultimately resulted fatally—I noticed that the vegetable forms above mentioned were destroyed, and instead the micrococcus and bacterium termo appeared in immense numbers."

If it be true, therefore, that all "other forms of bacteria appear *exclusively* in the false membranes," and are destroyed by "the micrococcus and bacterium termo," while these latter appear and exist "in immense numbers," not only in the false membranes, but in all the surrounding tissues, and in the blood itself, it is clear that if we fully account for the two latter we have as fully accounted for all.

That there are other cells to account for than those

named is true, but how simply this is done, may be seen by the following: There is a proliferation of epithelial and connective tissue cells, and of the cells of other surrounding natural tissues in every case of diphtheria, and these natural cells are developed, often in more or less abnormal forms, by the diseased condition of the parts, so that all the "unclassified forms" of bacteria may be in these several ways fully accounted for.

Another point in this connection must not be overlooked. The proliferation of the epithelial, connective tissue, and other cells of the normal tissues surrounding diphtheritic patches, or exudations, is caused by the same that causes the excess of fibrin to be left in the blood. That is to say, the loss of albumen necessarily leaves an excess in the blood of the materials out of which all the cells named are grown; and this blood, so over-loaded with both fibrin and cell-growing material, when congested in any part, as in the tonsils, or other parts of the fauces, in the mouth, nose, etc., in diphtheria, pours out into the tissues the surplus fibrin and cell-protoplasm, the former to organize into the diphtheritic membrane, the latter to grow all the cells that it naturally feeds, in excessive numbers. Can anything be more rational, logical, and natural?

Returning, now, to the three forms of classified bacteria spoken of, they were stated to be, first, spherical; secondly, rod-like; and, thirdly, spiral, or cork-screw shaped. And now, in connection with these forms, and all that has been said in the preceding pages of the membrane of diphtheria being fibrin, what a flood of light would be let in upon this whole mystery, if it could be shown that fibrin takes on the identical forms of these so-called bacteria, in its process of coagulation, or more properly, of fibrillation.

And this is precisely what fibrin does do. In its first efforts at fibrillating it assumes spherical forms in infinite

numbers, which are "on the very borders of the visible," and identical in appearance with the spherical bacteria, or micrococci; and these spheres, or many of them, soon elongate, or join together, to form "rod-like" processes, precisely like the bacterium termo, or rod-like bacteria; and, finally, some, or many, of the fibrils, if their ends are left free from attachments, contract under their firmer organization, into more or less of the spiral shape just like spiral bacteria. What a beautiful solution, therefore, does nature furnish us of this seemingly impenetrable mystery.

That such is the correct solution of this whole question is shown to be more than probable by the following quotations from both Lehmann and Carpenter, upon the coagulation of fibrin, in which they are sustained by other writers.

Lehmann, vol. 1, page 311, speaking of the coagulation of fibrin, says:

"If we trace this transition of the fibrin from the dissolved fluid condition into the solid state under the microscope, a careful observation shows us that the fresh *liquor sanguinis* exhibits nothing morphological beyond some few colorless blood corpuscles; when it begins to gelatinize, separate points or molecular granules appear at various spots, from which arise extremely fine straight threads, in radiating lines, although they do not form star-like masses, as in crystallization; these threads becoming elongated cross those springing from other solid points, until the whole field of view appears as if it were covered with a delicate, but somewhat irregular, cobweb."

Speaking of the fibrillation of fibrin, Carpenter says, on page 60:

"The first indication of the approaching change as seen with a microscope in a thin film, consists in the appearance of minute molecular points, which are scattered over the field, and from these speedily arise fine thread-like prolongations, which radiate irregularly from them, crossing those that arise from other centers, and at last covering the whole field of view as with a delicate, but somewhat irregular, cob-web."

Fibrin does, therefore, universally coagulate in every

effort it makes at organization ; first, into “ *minute* molecular points,” which, when excreted into the pharynx, etc., in diphtheria are the so-called spherical bacteria, or micrococci of the disease ; and, secondly, it fibrillates into the “ *fine* thread-like prolongations ” of Carpenter, or the “ *extremely fine* straight-threads ” of Lehmann, which are the so-called rod-like bacteria.

The foregoing descriptions of the organization of fibrin apply more particularly to that process in healthy blood, and when it, the fibrin, is in its natural proportion therein to the other constituents. But in diseased blood, or when the fibrin is in excess of its normal proportion, it fibrillates more slowly, as was long ago well known, thus leaving it in the spherical forms, molecular points, it first assumes, longer than natural, before these elongate, or join together, to form themselves into rods. Hence, the swarming of these spheres of fibrin, (micrococci,) everywhere in diphtheria, as the latter are claimed to do, and hence their being so greatly in excess of all other forms of so-called bacteria.

From the strong tendency to fibrillate, with which we have seen that fibrin is possessed, when in excess in the circulation, it would necessarily often organize in part in the blood, or into the molecules of the first stage of its fibrillation, as it is so well known that it sometimes does more completely into clots, or emboli, when in excess ; and these molecules would be found in immense numbers in the blood, and in all parts where this was congested, when in that condition.

No advocate of the bacteria theory, of learning or experience, will deny that fibrin does sometimes coagulate in the blood-vessels, or in one of the cavities of the heart, in diphtheria, as claimed, causing immediate death if the coagula are large, or embolism if they are small ; nor can it be denied that fibrin possesses so strong a tendency to

fibrillate, under favoring circumstances, that it must of necessity organize into the "fine molecular points" of the first stage of its coagulation, in almost infinite numbers in the blood, when in excess therein. It could never form the clots, or emboli, unless it took this first step in their organization; and these molecular points must organize still further, or join themselves together, to form thread-like prolongations in the vessels, or there could be no second step, and no coagula.

And what is true of the more severe cases, is equally true of the less severe cases, excepting that while the molecular points are very numerous in the latter class, they would not be found in such immense numbers as in the former, because there is not so much fibrin to develop them. The same general fact would also be just as true of the fibrils; and the more fibrin the more danger of coagula, other things being equal.

Again, all the parts where blood, so loaded with an excess of fibrin, is congested, would be the parts to show the greatest number of the granules and fibrils of it, as in and about all parts where membranes have formed, or are about forming; while there would still be a great number of them in the general circulation. Can anything be more simple?

Let us now consider another important point. Intelligent physicians, who may believe in bacteria, will hesitate to claim that there are two sets of forms, exactly alike in size and appearance, in each stage of their development, alike as a whole, and alike in their consequences upon life; the one being vegetable and the other animal, and both present in almost infinite numbers in the blood, in all congested parts, and in the exudations in every case of diphtheria. That would be an absurdity upon its face.

If, therefore, fibrin be in excess in the blood in diphtheria, and demean itself precisely as it is asserted that the

so-called bacteria do, neither of which propositions can be denied, then the whole ground is covered, and the controversy ended, as far as the non-vegetable origin of the malady is concerned. All writers upon the disease, whether they advocate bacteria or not, concede the fibrinous character of the membranes of diphtheria, as we have seen that Oertel does, so that fact is placed beyond question. What, then, can be the need of an unwarrantable assumption of the presence of vegetable parasites, without the slightest proof to sustain it, by which to account for what is fully and most scientifically accounted for without it?

It would be preposterous, too, to say that all the diseases named on a preceding page as sometimes complicated with diphtheria, such as cholera, typhoid fever, dysentery, scarlet fever, measles, small-pox, etc., should alike produce identically the same vegetable parasites, to further endanger the patient's life. That would be out of the nature of things.

On the contrary, it is the most rational and purely scientific view that can be taken of the subject, that the membrane of diphtheria is in some way poured out from the blood—not that its molecules penetrate from externally into it, as some teach; and it being fibrinous, that it must come from the excess of fibrin therein, in the way named.

And this, then, is the whole, but simple, story of bacteria and micrococci in the blood, and in the exudations of diphtheritic patients, about which so much has been said and written, and upon which has been built a system of treatment as fallacious as the theory; and the only tendency of which is to destroy or greatly injure the patient, instead of the imaginary vegetable fungi, that have no other foundation than in the conceptions of observers and writers, who have entirely mistaken the character of the offending exudations.

It is barely possible there may be vegetable fungi, that grow

from or feed upon the putrefying exudations of the more malignant cases of diphtheria, as they do in other instances of putrefaction in nature, without having the least influence as a cause; but every fact we know is positively against even that idea. We will consider two or three remaining points bearing upon this part of our subject. Were the assumed bacteria vegetable, the well-known disorganizing and dissolving powers of saliva would, no doubt, rapidly destroy them. But, again, and what is more applicable, we have seen by the statement made at the outset of this essay, and all know the fact, that diphtheria spreads as an epidemic in the most severe freezing weather of winter, as well as in the warm weather of summer, which is not the case in the slightest degree, with those diseases that are known to have a vegetable origin, such as yellow fever, bilious fever, intermittent fever, and the like. Frost utterly destroys all germs of these diseases, when they are actually reached by it, and they are never renewed until nature has generated them anew, in the same way she did the old, by a long term of warm weather.

So, look at this bacteria theory in any light we may, it would seem to belong to that long, unended, and apparently unending, list of pathological phantoms, that has done more to divert the professional mind from nature as it is, in its great simplicity, to bewilder us all, and complicate our treatment, than all other distracting thoughts combined.

HOW THE EXCESS OF THE OTHER CONSTITUENTS OF THE BLOOD IS DISPOSED OF.

The other constituents of the blood besides fibrin, which a loss of albumen leaves in a relative excess in the circulation, are easily accounted for.

The excess of blood corpuscles causes the congestions, hemorrhages, abscesses, ulcerations, and the like, some one or more of which invariably attend or follow diphtheria; and it is in this way that such excess of corpuscles is finally expelled from the vessels and disposed of. In the case of abscesses and ulcers, the blood corpuscles are, of course, first decolorized in the process of suppuration, and then discharged as so-called pus-corpuscles. In some cases, moreover, critical diarrhœas arise to carry off the excess of corpuscles, they being wholly broken down, or dissolved, when that is the case, and cast out through the bowels as fœcal matter.

The subject of congestions, however, in diphtheria demands further attention in connection with the claim that it is the excess of blood corpuscles that causes all congestions in the disease, and I again quote from Oertel, page 651, vol. 1, Ziemssen. In speaking of the condition of the brain and spinal cord, he says:

“As earliest form of the change, I found extensive venous hyperæmia, both in the vascular linings, and in the substance itself, of the brain and spinal cord. At the same time, I observed in some cases small capillary hemorrhages scarcely as large as a pea, generally scattered, or in groups of two or three, in the white medullary matter of the brain, while in the cortical layer, and in the central parts, no extravasation was found. * * *

“When, however, the affection has risen to the greatest intensity, we can see at once, on opening the skull, isolated hemorrhages in the dura mater, and after its removal, generally in still greater numbers and

extent in the pia mater, both in the portion covering the surface of the brain and also in the folds which dip down between the convolutions. These clots extend also to quite a depth into the cortical substance of the brain, and may, as Buhl has observed, have reached the size of a pea. Hemorrhages may occur also in the other portions of the brain, in the medullary matter, in the commissures and ventricles, also in the optic thalami and corpora striata, the crura, the pons, and in the cerebellum (Buhl), and these ruptures of vessels can be traced along the medulla oblongata and spinal cord. * * * Finally, in the spinal nerves of both sides, at the point of junction of their anterior and posterior roots, and including the intervertebral ganglionic swelling upon the latter, Buhl found in one case this remarkable appearance; they were almost doubled in thickness, dark red on account of extravasation of blood, and in parts yellow and softened."

Of the condition of the lungs in this respect, the same author says, page 643 :

"In contrast with the anterior surfaces of the lung, its posterior portions, especially those of the lower lobe, but ordinarily also those of the upper, are very full of blood. * * * The lung shows more or less numerous and extensive extravasations of blood. * * * These extravasations vary from an ecchymosis the size of a pea to an infarction as large as a walnut, and I have several times seen infarctions as large as a hen's egg."

Of the pericardium and heart, page 646, he says :

"We find small and large hemorrhages and ecchymosis both in the parietal and visceral layers of the pericardium, and also under it in the substance of the muscles of the heart. * * * The muscles of the heart are more or less broken by extravasations of blood."

Of the liver and spleen, page 647, he tells us :

"The *peritoneal covering of the liver* shows, in rare cases, scattered or numerous capillary hemorrhages." * * *

"In some cases," he found the spleen enlarged, "the capsule stretched and covered with extravasations of blood; the parenchyma dark cherry red."

In the stomach, "the sub-epithelial and sub-mucous tissues are broken by capillary hemorrhages," and the "clots of blood, from a pin's head to

a pea in size, can appear in such quantities, and so near to one another, that whole strips of the mucous membrane of the stomach are colored red."

"The same hemorrhages, as symptoms of secondary affection, have also been observed in the mucous membrane of the intestine," and "such extensive hemorrhages from the great omentum that a considerable quantity of free blood had collected in the peritoneal cavity."

And so on, of the kidneys, lymphatic glands, and even the general muscular system, all furnish like evidences of congestions, hemorrhages and coagula. What, then, can be the proper explanation of all this? The great excess of blood corpuscles left in the circulation, by a profuse waste of albumen, clearly explains all, as does the excess of fibrin show us the cause of the false membranes, wherever they are developed.

Diphtheria is certainly not a disease of plethora, by which to account for such wide spread congestions and hemorrhages. On the contrary, it is one of anæmia, or becomes so in its progress before serious congestions of parts beyond the pharynx and larynx are reached. There is, consequently, no rational solution of such results to be offered, excepting that they are caused by the blood corpuscles being left in so great an excess in the vessels, during the progress of the disease, that in the weakened state of the forces of life in such cases, no other disposition can be made of them.

Nature puts forth conservative efforts under all possible circumstances to preserve life as long as she can. Of this we have an example, as it seems to me, in epistaxis and other hemorrhages in diphtheria that cast the surplus corpuscles entirely out of the system, that they may not be deposited in it to increase the danger. But in such cases as Oertel gives, the system in its exhausted condition cannot accomplish their full expulsion therefrom, but does its best to rid the general circulation of them by their con-

gestion in the way he says they are found in fatal cases. Certainly, if the surplus corpuscles were fully expelled by an active external hemorrhage, they could not congest internally, or produce coagula there to take life in that way. Here, too, then, we have a simple and natural accounting for another important series of pathological developments, which cannot, at least in the present state of knowledge, be as satisfactorily accounted for in any other way.

The excess of water, through deficiency of albumen, is what causes the blood to be so watery, both during and following the disease; and this excess is disposed of through diuresis, critical or excessive perspirations, in dropsies, and the like, which follow immediately upon diphtheria.

The excess of fatty matters causes the so-called fatty degenerations of parts or organs that sometimes follow diphtheria; but in the great majority of cases, it must be excreted and discharged from the system during the progress of the disease.

And the excess of the salts of the blood, etc., could be followed and accounted for in the same simple manner, but it seems unnecessary to enter more into details in regard to them, as the professional reader will see the only natural disposition that could be made of them.

Diphtheria is, therefore, of necessity, as will be seen by all this, a *constitutional disease*, or as much so, and in the same sense, as is scarlet fever, measles or small-pox.

THE ACTION OF COLDS IN PROMOTING DIPHTHERIA.

From what precedes, it will be seen how colds predispose to diphtheria, and that they may sometimes promote it in the non-scrofulous, as well as so frequently in scrofulous subjects.

A severe cold taken by a child or adult who is not scrofulous, and settling in the throat or nostrils, with severe effects for several days, greatly irritates the mucous lining of those parts, causes a profuse flow of mucus, that is, waste of albumen, and leaves an excess of fibrin in the blood ; and, if the patient is one of those who do not readily excrete fibrin in its fluid condition when in excess, and thus rid the system wholly of its presence, it will coagulate into molecular granules in the circulation, and especially in or upon congested parts where there is so much superfluous blood, and there organize into a fibrinous, or the so-called diphtheritic, membrane.

In scrofulous subjects precisely the same results follow, but often much quicker and in a more aggravated degree, for the following reasons: We have seen the accurate and quite vivid portraiture of the scrofulous child by Prof. Hamilton, and, among other things, that "in infancy the condition manifested itself by tegumentary eruptions, such as were seen upon the face, head, behind the ears, etc. As the child advanced in life the condition manifested itself in other structures, and more especially the mucous membranes, and he suffered from various catarrhal affections."

In other words, the said "tegumentary eruptions," being inseparable from such subjects, unless radically cured, act internally when they do not act externally. That is,

when the vigor of vitality and nutrition which keeps them to the surface in infancy is partially exhausted by the lapse of time or from other causes, they become translated to, and continue their irritating and exhausting work upon, some one or more of the mucous membranes, hence the "various catarrhal affections" that follow.

Or, what is often equally true, the vigorous vitality of many children forces such humors into a partial or completely dormant state in their systems, from which they are aroused by colds, or other sufficiently provoking causes, that exhaust the vitality to such an extent that it can no longer hold the taint in subjection. A cold, therefore, taken by such a subject, has not only its own specific effect in irritating the mucous lining of the nostrils and pharynx, but arouses more or less of the tegumentary eruption (previously but slightly active, or wholly dormant) and sets it to work upon those inner passages to cause a much greater flow of mucus than the cold alone would; hence the worse consequences, generally, to such patients than to those who are not scrofulous.

If the humor has been previously partially active, in the chronic form, producing chronic catarrhal secretions, then fibrin is already in excess in the blood, from the preceding daily loss of albumen, and colds will generally be much more rapid in developing serious consequences than when such is not the fact. This explains why diphtheria will frequently develope in such subjects in a few hours or in a single night. Fibrin being already in excess in their blood-vessels, but little addition requires to be made to such excess, or will be tolerated, and but a comparatively slight prostration of the vital powers can be sustained, before it will commence to coagulate either in the blood, or in or upon congested surfaces, to organize into a membrane and show its malignant action. With the non-scrofulous, on the

contrary, it requires more time and more severe colds to reach such effects.

In some cases, diphtheria, or the fibrinous exudation, will develop in the throat when the cold settles upon, and wastes albumen through, some other than the nasal or pharyngeal mucous membrane, as through that of the bronchi, stomach, bowels or kidneys, as we have seen that it does develop in the female organs, and in the air-passages in cholera, when water is wasted through the intestinal mucous membrane. But generally, of course, the excess of fibrin is exuded upon that mucous surface which is the primary seat of the cold.

All this explains, too, why sporadic cases of diphtheria so frequently arise without previous infection; whereas, when the disease becomes epidemic, and spreads by contagion, the virus of it must necessarily produce its kind, as is done by the specific virus of all other contagious diseases. It will, of course, be understood, that when taken by contagion, the disease seats primarily upon the mucous membranes, and, from its action there, develops all the consequences pointed out.

Those most liable to diphtheria.

A reasonable and serious objection to the foregoing conclusions will occur here to the minds of many, if left unexplained; and that is, many children take severe colds which cause a most profuse flow of mucus, and consequent large waste of albumen, and yet never have diphtheria, while others will have it lightly under similar circumstances, and others still will have a less profuse waste of albumen, but have diphtheria badly, or some of them, perhaps, in a very malignant form. Indeed, there is every conceivable deviation in these respects in different subjects.

The reasons for all this must be obvious when attention

is once called to them. Diphtheritic subjects are those persons who cannot, or do not, readily excrete or expel from their systems, in a fluid condition, as others apparently do, an excess of fibrin, which may be left, or from any cause is produced, in their blood; hence it must coagulate, as is its nature, when the surplus becomes too great, either in the blood, or upon parts or surfaces where there is irritation or congestion beneath, and produce the characteristic membrane. That this must be the true explanation of such differences in individuals, we find many proofs and examples, from daily experience in practice.

In the first place, some persons possess a greater vital power in special directions than others in that same respect, to protect them against morbid influences, or to cast out disturbing agents. How conspicuously this is often shown by some resisting entirely the contagion of the most malignant diseases; while others, who do take them, have them but lightly, and others still are quickly destroyed by them, even when all outward circumstances may be more favorable to the latter, than to either of the other classes. Again, precisely the same, or very similar results of a disease, bring much greater danger to life to some than to others, as we see well illustrated in the very disease under consideration, in which a certain amount of the membrane formed would result in death to one and not to another.

But other examples will, perhaps, be more convincing, and let us recur again to Bright's disease for one of them. In many cases of this malady there is a great excess of water left in the system; in other words, the blood becomes excessively watery in most cases, and yet all patients suffering from it do not become dropsical, as is so common with many of them. Several of the worst cases of Bright's disease I have ever seen, that is, where the quantity of

albumen discharged was the greatest, there was not the slightest manifestation of dropsical action to the close of life ; and yet in other cases with much less loss of albumen, dropsy was the first, or among the first, symptoms that called the patients' attention to the fact that anything serious was ailing them. Then, too, in consumption, as all know, where the blood is much too watery, many patients do not show the least indications of dropsy, during life, while others will become dropsical in the second stage, and a still larger number in the third, or last stage.

All this is explained on this basis, and this only, namely, that those who do have dropsy represent that part of mankind who, when they have either of these diseases, do not readily excrete through natural outlets, or have not the power to get rid of, the great bulk of the excess of water from the blood (no matter by what cause produced, but which, as is so well known, all such patients suffer from); consequently it is left to accumulate in their blood-vessels, until the excess becomes so great that it transudes the walls of the capillaries into the surrounding tissues and causes the dropsy; while those on the contrary who do not have dropsy under similar, or even worse circumstances, represent that class who have the power to readily excrete, and wholly expel from the system, the surplus water, however great ; and thus avoid its deposit in any of the tissues or cavities, to cause dropsy.

Returning again to diphtheria, we have seen that cases of this occur in connection with many diseases entirely foreign to it in every other respect, yet few such, excepting in scarlet fever, show this complication, while the many do not, the former evidently being those who cannot dispose of surplus fibrin without its exudation and organization into a membrane, while the latter throw it off in a fluid state. To repeat, then, both primary and secondary subjects

of diphtheria apparently do not possess the power to dispose of the excess of fibrin, excepting in exudations, as do all those who cast it out without its first organizing.

A fine illustration of the excretion of fibrin in a fluid state is found in cases of hydrothorax and other internal dropsies, where it is effused with the water, but does not coagulate in this until it is drawn off and exposed to the air. Much of surplus fibrin is also undoubtedly cast out unorganized and washed away in the profuse mucous discharges of those cases of diphtheria where such discharges are profuse, and where the amount of false membrane does not correspond with the quantity of albumen apparently lost.

Again, there can be little doubt that some diseases interfere to prevent the excretion of an excess of fibrin in a fluid form more than others. This must be so in a marked degree with scarlet fever, in connection with which diphtheritic exudations have occurred in a large majority of all cases that have come under my observation; and very much more commonly than in measles, where the mucous secretions are almost always much more profuse than in scarlet fever. In other words, the scarlatina poison seems to partially destroy the power which the system naturally possesses, and shows under other diseases, to handle and dispose of redundant fibrin, without reference to what brings it into excess in the blood. And the true diphtheritic poison, when the disease becomes epidemic, or is taken by infection, appears to possess the same, or a still greater power, in this respect. Colds, too, would appear to have this power over some persons, to produce the membrane so quickly as we see in some cases of diphtheria; while with acute rheumatic subjects colds determine the surplus fibrin to the joints, and cause a fibrinous inflammation there.

The fact that fibrin is, for some reason, brought into

excess in the blood in all inflammatory diseases, and under many other circumstances, educated physicians will not require proof to sustain ; indeed, a full history of all that was written and said upon this subject during the first half of this century, would furnish quite a complete history of the sayings and doings of the medical profession for the same period of time. But if further evidence should be required upon this point, it will be found in a paper which will be given as an appendix to this volume, but which was first published by the author ten years ago.

SYMPTOMS.

The symptoms, or at least the sufferings from diphtheria, are not always the most violent in the most dangerous cases. Well do I remember a case in point. When a student, a strong, athletic and previously healthy young man, aged about twenty, came into my preceptor's office one morning, complaining that his throat was somewhat sore, that he had had some fever through the night, and wished a prescription. This he received, and went to his business, no one thinking, and there being nothing apparent to superficial observation to show, that he was in immediate danger ; but he died in less than thirty-six hours of gangrene of the tonsils, as was said. That was before the adoption of the name diphtheria in this country, and the case was called one of black-tongue, or putrid sore throat, ending in gangrene.

Another case, that occurred in this city in 1868, was that of a very healthy, robust boy, in his fourth year, who for the first time complained at breakfast that he did not feel well, and ate little, but went to his play. Nothing was thought of his condition by the family, as he had

always been so healthy, until two or three hours later, when his mother saw he was becoming seriously ill, sent for a physician, who arrived about noon, and told her the child could not live till night, and he died at five o'clock the same afternoon; also of gangrenous conditions, as nearly as I could learn.

It is often the case in diphtheria that little pain or soreness of the throat is complained of during the first two or three days, and seldom is it severe, like tonsillitis or quinsy, excepting upon, or immediately following, the detachment of the membrane, which will be more fully spoken of under treatment. But one very characteristic and early symptom of the disease should be known to the young physician (those of experience know it full well already), and given that prominence in diagnosis that its importance demands; and that is, severe pain in the loins and hips, like that attending the incursion of small-pox, and generally complained of as an aching or bruised pain, as though the parts had been severely beaten. With that, there is also generally a great sense of fatigue, as though some great physical effort had been endured, or a long and exhausting walk taken.

When these symptoms are encountered in connection with the least appearance of disease of the throat, the physician should examine the fauces carefully, keep close watch of his patient for two or three days, and give warning against all exposures. It would be well, indeed, to examine the fauces in all cases where such symptoms of the loins are complained of, without other apparent cause, even if the patient makes no allusion to the throat. In several instances I have found diphtheritic conditions of the tonsils, under such circumstances, where the patients were not aware of any throat disease. Two such cases, in adults, occurred in my practice in the last two weeks. Both

patients persisted in asserting there was nothing the matter with their throats, but an examination showed the existence of a considerable patch of membrane in one case; the other had congested and inflamed tonsils, and during the night following the dirty yellow membrane appeared. Both complained severely of the characteristic pain in the back and great fatigue, with severe headache.

There are cases of true diphtheria, of course, where great soreness of fauces is an early symptom, but in the writer's experience of twenty-six years, and seeing a greater or less number of cases nearly every year, the majority of patients have not made such serious complaint of acute soreness of the throat as in ordinary tonsillitis, until, as said before, the membrane became detached.

Children are quite commonly attacked with nausea, vomiting and high fever at the outset of the disease, as in scarlatina; but adults are less frequently taken in this way.

Another very characteristic symptom of diphtheria is the exhaustion or great debility that so soon results in most cases. There is no disease, in fact, excepting cholera, that so uniformly prostrates patients as rapidly as does this. And here, too, the cause assigned explains all. Albumen being, as already stated, the sole dependence of animal life, for muscular strength, if a portion of it is wasted just so much of the physical vigor of the patient is exhausted. So whatever point may come up for explanation in the nature or results of this disease, that cause shows us why it is that such and such are the facts. Thus it is in all instances where we carefully examine into and closely follow nature's work.

Diagnosis.

Little can be required to be said, in addition to the foregoing, upon the question of a correct diagnosis of diph-

theria. It matters not what the symptoms may be, no case can be properly, or at least with certainty, called diphtheria if the characteristic membrane be absent; and there can be no dispute as to the nature of any case, if said membrane is present. The only instances where doubt can arise occur in occasional cases of severe, acute tonsillitis, in which a thin, delicate, white membrane is seen upon the tonsils, but even this is fibrinous, and to that extent may be called diphtheritic, as may be inferred from the preceding pages; though in everything else, as in the attendant symptoms, the danger, and the *sequelæ*, the case is far removed from diphtheria.

One other point might also be named. Acute tonsillitis is always phlegmonous, seldom malignant, and tends to a benign abscess; whereas diphtheria is rarely phlegmonous, properly speaking, rarely suppurates, and is always more or less malignant. In considering the question of suppuration, however, in diphtheria, the proper distinctions should be made. The ulcerations that occur in this disease, and which are so extensive in many cases, are always malignant, never benign like the suppuration of acute tonsillitis, and almost always begin upon the surface, instead of commencing deep and coming to the surface like a common abscess.

T R E A T M E N T .

First of all, under this head, we should consider the *principles* that must govern us in the treatment of diphtheria, if we would cure the greatest possible number of cases. Of these principles, the first and foremost is that *local* treatment must never be resorted to by the physician, or permitted on the part of the patient, under any circumstances, if serious results would be avoided. It being a constitutional disease, it must be treated by constitutional methods, and those alone. But there are far better reasons than this why local treatment must never be practiced or allowed.

We have seen, in discussing the cause and nature of the disease, that the *slightest* irritation of a mucous membrane causes it to secrete albumen, and thereby waste it from the blood; and this is equally true, whether such irritation be made by mechanical, medicinal or chemical means, or by disease; also, that it is a waste of albumen that leaves the fibrin in excess in the circulation, to cause the diphtheritic exudation.

The least irritation of the fauces, therefore, by gargles, by spraying or cauterizing, or other corresponding means, only causes a greatly increased flow of mucus and a still

greater waste of albumen, in consequence, than the disease itself has and is causing, thereby increasing by so much the excess of fibrin to be disposed of, adding that much more material to the membrane, and enhancing the dangers of every case. It is not possible to be otherwise when such treatment is resorted to.

Therefore, it must be clear to every thinking mind that, upon this ground alone, all local treatment of diphtheria should be, henceforth, absolutely and forever discarded. Many have been the children who have died, either during the progress of the primary disease, or under its *sequelæ*, in consequence of such violent treatment, who might have lived had that simply been avoided.

But there are still other equally potent reasons why local treatment should never be resorted to. Supposing the fauces are diligently gargled, sprayed, or cauterized, or all combined, until a vigorous reaction has been established therein, the membrane removed, and more prevented from forming, what then? There has certainly been a greatly increased flow of albumen caused by it, and the excess of fibrin has been correspondingly increased in the blood in consequence, as just said. Does that, or can it, cure the patient? Most certainly not. But the danger has been enhanced, instead, in no less than three ways.

First.—There being an increase of fibrin in the blood, caused by the treatment, beyond what would have been without it, and the pharynx having been stimulated and aroused to such a point of reaction as to prevent nature from casting the excess of it out upon the walls thereof, where she endeavors to, compels its retention in the circulation, and greatly hazards life by increasing the dangers of heart-clots and sudden death, or embolism and death by a slower process; or,

Secondly.—The reaction established in the fauces by the local treatment will force both the catarrhal disease and the

exudation of fibrin off into or upon a more vital part or organ, as into the larynx, bronchi, kidneys, etc., and cause fatal complications in those parts, or some subacute or chronic disease of most serious import, of the same or other parts, and often ultimately fatal; or

Thirdly.—The great irritation and shock to the nerves of the pharynx by spraying, cauterizing and the like, in the first instance, and compelling the pouring out of the superfluous fibrin into the substance of the tissues beneath the mucous membranes, instead of upon them, to greatly press upon and destroy the nutrition of the nerves thereof as another result, causes those sad cases of paralysis of the muscles of the pharynx, primarily, and possibly of other parts secondarily, which quite commonly occur, but which would rarely, if ever, arise if such objectionable methods were avoided. The dangers of gangrene are also frequently enhanced at the same time.

Of these three dangers not one is imaginary in the least, but all are terrible realities. The first and last are fully recognized by all prominent authors as among the most serious complications, or *sequelæ*, of diphtheria that can arise, though without fully explaining the causes, or what it is that enhances the risks from either; while little, if anything, appears to be known to the profession at large, or spoken of by authors, of the second named danger, or the consequences of suppressing the disease. And yet this is as great a danger, if not greater, in the numbers who suffer from it, than either of the others, as I will now try to illustrate by two cases from many similar ones seen in practice.

In Oct., 1877, I was consulted in the case of a little girl from a neighboring state, aged about four years, who was suffering from chronic bronchitis of a most serious character, that had resisted all treatment for several months. *Rales* were heard through the greater portion of both lungs, with

marked dyspnœa; pulse was 120 per minute and upwards; almost entire loss of appetite; emaciation and palor; severe and obstinate cough, etc. The preceding June the little patient had an attack of diphtheria, which was treated locally in the ordinary manner, and suppressed, being driven down upon the bronchi. At least the above named condition and symptoms followed immediately upon her recovery from diphtheria, and had continued on for the four months until I was consulted.

The case was found to be very obstinate under treatment, yielding but slowly during the entire succeeding winter, every cold aggravated the symptoms seriously, until spring, when the bronchial disease gave way more satisfactorily, till June, just a year from the first attack, and then she was again seized with diphtheria, nearly or quite as severely as at first. For this no local treatment was allowed, but under constitutional remedies she made a quick and satisfactory recovery, and from that time on the whole force of the disease of the bronchi was broken. Indeed, there was little or no manifestation of it excepting after severe colds, and then but for a few days, until the next, or last June, when I examined her and found little or no traces of bronchitis left.

But for the successful treatment, this little patient must have died of chronic bronchitis, or resulting tubercular complications, within a few months; and because of suppressing the throat disease and driving it down upon the lungs. We have seen that the bronchial disease followed the suppression of diphtheria in the first instance, and when the former was relieved the latter returned to its primary seat and character; and the proper constitutional treatment of this, then, was not followed by a return of bronchitis as at first, but by a still greater relief of it than was before manifest. The connection between the two is, therefore,

established as clearly as is ever the case between any internal disease that may follow the suppression of the eruption of measles or small-pox, and the relief to that upon the restoration of the eruption upon the skin.

How infinitely better would it have been to have had the proper treatment at first, and avoided all this suffering, risk, and, possibly, a permanently injured constitution.

Another case furnishes the following instructive history: Last summer a young lady from a distant city, aged twenty, of large and powerful frame, and without hereditary tuberculosis, consulted me for unmistakable threatening of phthisis pulmonalis. She had a severe cough, quite profuse yellow and gray expectoration, severe acute pains almost daily in the central portion of left lung (and when they were not present, soreness and dull pain), night sweats, afternoon hectic, rapidly progressing emaciation, very scanty and almost colorless menstruation, etc.

She, also, had diphtheria a few months previously, which was treated locally, and was succeeded by the cough, which she never had before, and a gradual development of all the symptoms named. Her case was more amenable to treatment than the preceding, only a few weeks being required to so far relieve the more serious symptoms as to allow her to return home. Improvement in all respects continued steadily on, excepting one or two interruptions from colds, until the latter part of December, when she thought herself almost fully restored to health, and was then attacked with diphtheria again. She telegraphed for remedies, but before they reached her the diphtheritic symptoms became so alarming that the friends called in their family physician, who resorted to the same vigorous local measures as before, and suppressed the disease again, with an immediate renewal of the same cough, pains in lungs, hectic condition, night sweats, scanty menstruation,

and the like ; and she is now, March, 1880, under treatment for these symptoms, with the probability of requiring a much longer time than last summer to again cure her lungs.

I could give several similar cases to these ; and others with still different and equally serious results, upon other organs, from suppressing diphtheria by local treatment, but these will suffice to show the fact claimed, and point out the great danger in this direction.

Paralysis.

There are some points, also, in connection with paralytic conditions, arising from diphtheria, that require a more careful consideration, and especially with reference to prevailing methods of treatment.

Paralysis following diphtheria, generally commences in the pharynx and extends from that to other parts, or not, according to the severity of the preceding treatment, and the patients natural tendency to that result. The muscles of the pharynx seldom become suddenly paralyzed, but loss of power commences in a few of their fasciculi, and extends to more and more of them, until the whole muscular structure of the pharynx may become involved ; then disturbances of sight may arise, also paralysis of the upper or lower extremities, and, in some cases, of the face, larynx, diaphragm, rectum and bladder. It will therefore be seen that this is commonly, if not always, a progressive paralysis, commencing in and extending from nervous filaments to the nerve trunks of the pharynx, and from these to other nerve trunks, or to the whole nervous system, as the case may be.

Here an important fact arises, too, in explanation of those sudden and often unexpected deaths from paralysis of the heart or lungs, after diphtheria. The extensive distribution of branches and filaments of the pneumogastric nerve to the

pharynx, and the fact of the paralysis being progressive from filaments to nerve trunks, shows how this may extend in some cases to the trunk of that nerve, or to some of its more important branches, and thus paralyze it, or them, and all the organs to which they lead, and cause immediate death. It was in this way no doubt, and from this nerve, or the cardiac branches of it, becoming paralyzed, that the Crown Princess of Prussia so suddenly lost one of her children last year of paralysis of the heart, according to newspaper reports, after it was thought to be entirely out of danger.

Finally, that diphtheritic paralysis is generally more the result of treatment; that is, of the great irritation and shock to the nerves by cauterizing the tonsils, spraying and gargling the fauces, and other like violent means; or, secondly, of destroying their tone by anæsthetics, anodynes, and the like; or, thirdly, preventing the exudation of superfluous fibrin upon the surface of the mucous membrane, and compelling its deposit deeper in the tissues instead, and about the nerves of the parts to destroy them by pressure; that paralysis, I repeat, is much more due to such violent treatment, or the final results of it, than it is to disease, would seem to be shown by the fact that I have never seen it attend or follow in a single case of diphtheria out of all the great number treated strictly upon the principles laid down in the preceding pages, and by the remedies named in the succeeding pages.

In all cases of great violence done the nerves, the impressions are, as all know, carried to the roots of those nerves in the brain or spinal cord, causing a greatly increased flow of blood to them, that must necessarily, if frequently repeated, result in congestions, which are liable to end in the softening or breaking up of cell structures in whatever part of the brain or spinal cord such

congestions take place, and paralysis of all parts supplied by those nerves whose roots are thus destroyed. And that the violence done the nerves of the pharynx by cauterizing, etc., is very great, when the sensitiveness and susceptibilities of the parts are wrought up to their very highest point by such a disease as diphtheria, none will deny. Hence, it would seem that herein lies the secret of so many cases of paralysis following diphtheria of late years, which also shows us at the same time how it may be avoided.

The cruel practice of tearing away the membranes of diphtheria by force, as is done by some, it would seem need only be mentioned to be condemned and discarded. The dangers of paralysis of the fauces must also be increased by such violence done the nerves in their already highly excited and irritated condition. Although Oertel resorts to other topical treatment, he condemns that, and points out, not only its uselessness, but its great danger. Ziemssen, vol. 1st, page 672.

External applications to the neck, such as ice, cold wet compresses, applying petroleum, rubbing with liniments, painting with iodine, blistering, and the like, are only less objectionable than internal local treatment, as they are not so directly applied to the highly irritated diseased surfaces; therefore, do not generally overwhelm the vital forces of the parts, or arouse so powerful reactions, to suppress the disease and drive it off into or upon more vital parts or organs. Still, if they accomplish anything towards removing the disease from the fauces, they do not do it through truly curative action, but through their suppressing effects, and at a great risk of enhancing some one or more of the three dangers already named. Ice is the most dangerous external application, probably, that is ever used.

HOMŒOPATHIC REMEDIES FOR DIPHTHERIA.

The homœopathic remedies for the successful treatment of diphtheria I would, in accordance with my own experience in prescribing them, divide into three classes, in the order of their efficacy in curing the greatest number of cases. In the first class I would place two remedies only, namely, *Lachesis* and *Lycopodium*.

FIRST CLASS.

Lachesis.—This should be given at once, and without hesitation, when the disease *commences* in the *left* tonsil, or upon the *left* side of the pharynx, and extends, or not, to the right; and it may often, though not always, be given without much reference to other symptoms, when it so commences.

This is one of the most conspicuous of all remedies for malignant diseases of the throat, threatenings of gangrene, and the like; consequently we could not go far amiss in prescribing it for such malignant, and especially gangrenous, conditions; and yet, it should not be given upon general principles, but upon more specific indications, if we would get the most satisfactory effects from it; and one of the most prominent of all specific indications is the fact that the disease does begin upon the left side when *Lachesis* is called for. As a matter of fact, too, many, if not all other, symptoms will be found, upon a careful comparison, to correspond with and call for this remedy in the majority of cases when there is such commencement of the diphtheritic inflammation in the left tonsil.

Other prominent symptoms calling for *Lachesis* are: excessively fetid breath; livid or dark red hue of the swollen parts; sense of a plug or lump in the throat, especially left side; marked tenderness to external pres-

sure upon the throat or sides of neck ; rapid or great swelling of the neck in front and at sides ; great aggravation and fear of suffocation from the collar or other object touching the neck or larynx ; also, sense of internal swelling of the throat so great that the patient fears he will suffocate from it, as well as from the effort of swallowing ; alarming symptoms of dyspnœa on waking, as though the patient were dying, whereas, when awake, the symptoms do not appear dangerous, or at least so serious ; finally, great prostration, and, as already said, threatenings of gangrene.

Lycopodium.—This should be given with as little hesitation or delay, when the disease *commences* in the *right* tonsil, or upon the *right* side of the pharynx, as Lachesis for its commencement upon the left side ; and if the disease does not begin as a phlegmonous inflammation.

Other symptoms calling for *Lycopodium* are : fan-like movements of the nostrils and up and down movements of the larynx in respiration ; aggravations at 4 P. M. and, less conspicuously so, at 4 A. M. ; also, aggravations from cold food and drinks, with corresponding amelioration from warm food and drinks ; great flatulent rumblings in, or distension of, the abdomen ; disease commencing in the nostrils and extending to the throat, etc.

And yet the entire absence of these latter symptoms would not contra-indicate this remedy. Indeed, I would allow nothing to weigh against it, when the disease does begin upon the right side, unless it were the clearest indications for some other remedy, and the failure of this to relieve after the proper time to show its effects.

If the case, with right-side commencement, is very malignant, with rapid and great swelling of the throat externally, as well as internally ; great tenderness to external pressure ; danger of suffocation or of gangrene ;

great fetor of breath, or other prominent Lachesis symptoms, and Lycopodium does not relieve in due time, I would next prescribe Lachesis, and patiently await its effects, notwithstanding the disease did begin on the right or opposite side to what it does generally when this remedy is called for. The pathogenesis of Lachesis fully bears us out in this view, in some cases.

Should there be those, now, who will think it trifling with human life to rely upon the simple distinction as to which side of the pharynx diphtheria commences, as the principal guide to treatment in so grave a disease, all such are respectfully reminded that *nature* begins two-thirds or more of all cases in that way, as any physician may satisfy himself by a little careful observation, and nature *never trifles*. Her work is always done with a purpose, and she must be implicitly followed and obeyed in every curative measure, as in all things else, if we would avoid disastrous results from our dealings with her. One of her purposes in so commencing diphtheria is certainly to point out to us the true remedies for such cases, if we will but heed her language, and if a multitude of almost uniformly successful results, with other physicians, as well as myself, may be taken as affording proof.

In conclusion of this point, it is not a little instructive, too, that these two remedies, namely, Lachesis and Lycopodium, cure about the same proportion of cases as commence in the manner named. In my own experience of fifteen years, prescribing in this way, more cases have commenced on the left than on the right side, in the proportion of, say, three to two, and more than two-thirds of all have begun upon the one side or the other; while it is in these proportions, with here and there an exceptional case, that these remedies have cured. The exceptional cases were also all cured, but not by these remedies.

Physicians must, however, be careful to learn upon which side the disease actually does begin, for, by the time they are called, the opposite side will often be the worst, from the extension of the disease to it ; but they must not be governed by the latter fact. Sometimes I have found, upon inspection of the fauces, that the side the patient did not complain of showed the most exudation, and, to the sight, appeared to be the worst, but have never been as successful in prescribing upon my own observations, as upon the *patient's sensations*.

The fact has already been spoken of that in diphtheria there is rarely that extreme soreness or pain on swallowing as in quinsy ; and here, too, Lachesis and Lycopodium correspond better than most remedies, for neither has, or rarely so at least, the great suffering on deglutition that Arum, Belladonna, Phytolacca and a few other remedies have.

SECOND CLASS.

Apis.—Rapid or great swelling of the tonsils or tongue, more especially the latter, or of the exterior of the throat ; can bear nothing about the neck ; threatened suffocation ; puffiness of the face, especially about the eyes. For this combination of symptoms, or if but two or three of them are prominent, and Lachesis has failed to relieve, there need be no hesitation in giving *Apis* as the next most reliable remedy. Indeed, it might be given first, if the following symptoms be present also, and if the disease did not commence in a distinct manner upon the left side, and follow with Lachesis if *Apis* does not relieve.

Additional symptoms calling for *Apis* are : great debility from the very onset of the disease ; exceedingly quick pulse ; profuse secretion from fauces of transparent, frothy, or somewhat bloody, mucus ; *very frequent* but *scanty passages of urine*, sometimes, also, frequent and profuse, and,

less commonly still, very scanty and infrequent emissions of it, as an alternate effect of the other two conditions. Apis is also called for in "scarlet fever, complicated with diphtheria, with great restlessness, the patient tumbles over the bed almost unconsciously, moaning and groaning all the time; pains burning stinging: Hoarseness."—*Lippe*.

Arum.—Extensive acrid ulceration of the mucous lining of the whole buccal cavity, fauces, nostrils, corners of the mouth and borders of the lips, some one or more of these surfaces being red, raw and bloody, or discharging purulent or bloody mucus. See also *Bryonia*.

Additional symptoms are: great burning, smarting, or sense of rawness and dryness of some or all the parts named, especially of the lips, mouth and throat; swelling of the tongue, etc. If *Arum triphyllum* does not relieve, *Arum maculatum* should be administered, and if *Lachesis* does not relieve when the symptoms begin upon the left side, try *Arum*, if the above symptoms are prominent.

Belladonna.—This should commence the treatment of diphtheria if the case is seen early and found to begin with a phlegmonous inflammation, like acute tonsilitis or quinsy, with bright scarlet redness of the swollen tonsils and surrounding parts, and very acute sense of soreness or pain on deglutition.

It is rare that diphtheria commences as a truly phlegmonous inflammation, but it approaches that in a few cases; or such inflammation of tonsils may degenerate, in occasional instances, into diphtheritic conditions, under either of which circumstances *Belladonna* should be administered in the absence of the clearest indications for another remedy.

Other symptoms calling for this remedy are: eyes congested; dilated pupils; visible throbbing of the carotids;

and a firm, globular pulse at the wrist, as though it were a globule of mercury passing under the finger. This last is a very characteristic indication. It should be said, also, that this remedy may often be given, with equally good results whether the disease commences in the right or left tonsil, if the inflammation be truly phlegmonous, as already said, and attended by the severe suffering of acute tonsillitis on deglutition.

And, in the more acute cases, where Lachesis or Apis appear indicated, but fail, Belladonna will frequently be the remedy. Another of its most characteristic indications is a sudden or rapid increase of symptoms, and then a subsidence of them, but to be renewed again after a short time, and so on.

Bryonia.—One continuous, uninterrupted superficial ulceration, spreading over the entire mucous membrane of the inner surface of the cheeks, the upper and under surface of the tongue, the gums, the roof of the mouth, the fauces, the entire length of both nostrils, the corners of the mouth and borders of the lips, and extending on to the outer surface of the lips, the under lip the worst, and down upon the chin. The ulceration corresponds quite closely to that described under Arum, though not so raw and burning.

Several years ago I cured two of the worst cases of this kind that I have ever seen, and very rapidly, with *Bryonia*.

One of these, a little girl of four years, was a case of scarlet fever, with a very serious diphtheritic complication of the fauces, from which, after the subsidence of the scarlet fever, the ulceration spread rapidly, and without the slightest check from Arum, Arsenicum, Mercurius cor. and other remedies, until acrid pus streamed from every part of the inner mouth, tongue and fauces that could be seen, also from both nostrils, capping these over every night, and it dripped from the chin. The simplest liquid

food was only taken in the smallest quantity and with the greatest suffering. At this juncture, and in despair of my patient's recovery, I gave Bryonia in the 2000 potency. The next day, instead of pus streaming from every part named, all the surfaces were covered with blood, which seemed to ooze from every vessel over the whole extent of the ulcerated surfaces, and I was, at first, shocked and alarmed at the sanguinary spectacle presented when the child opened her mouth. Nothing could be seen therein but a deep red bloody surface in every direction, and blood was discharging moderately from the nose and chin. After my first alarm, I recalled my own convictions and teachings of years, that pus corpuscles were nothing more nor less than decolorized blood corpuscles, and that a bleeding surface was much better than an ulcerating surface, providing the blood did not flow too freely. A little reflection satisfied me this was the true view to take of the case before me, and I allowed the Bryonia to continue its action another twenty-four hours, when, to my delight, I found neither a bleeding nor pus-discharging surface, but everywhere a healing process had been set up, with only moderate discharges of bland mucus; and in another twenty-four hours the child was entirely out of danger, eating nicely, without suffering, all functions performed naturally, and she rapidly recovered perfect health, without the slightest *sequelæ* or unpleasant result of any kind.

The other similar case, which, however, was not so extreme, yet very serious, was cured just as quickly by Bryonia.

One of the guiding symptoms, or indications, to this drug, is where the disease either *commences*, or early presents an exanthema, or ulceration, upon the border and anterior surface of the lower lip, as was markedly the fact in both the patients spoken of.

Kali Bichromicum.—When a very tough, stringy mucus, that can be drawn out into long strings, is expectorated, or discharged from the nostrils, or when large partially dried masses of mucus are discharged from the nose.

Confirmatory symptoms are: tongue red, raw and shining; croupy cough, showing laryngeal and bronchial complications, with threatening of exudation in the larynx; swelling of the parotid and submaxillary glands.

Lac Caninum.—Dr. A. Lippe, of Philadelphia, kindly furnishes me with the following indications for this new remedy: “The deposits look as though they were varnished; exudations migratory, now here, then elsewhere; diphtheritic croup.”

Other indications, he says, are: “If the parotid glands are *first* attacked, and the disease extends to the other glands of the neck, give this remedy before *Mercurius jodatus*; throat and sides of neck not tender to external touch, as when *Lachesis* is indicated.”

Mercurius Jodatus.—When the submaxillary glands are very much swollen, and the cervical glands swell all around the neck; great difficulty in swallowing; extreme fetor from mouth, or of discharges from nose. (*Lachesis*, also, when there is great fetor.)

Mercurius Solubilis.—Excessive discharges of mucus from fauces and nostrils, with profuse salivation, and with or without soreness or pain on swallowing. The worst case of the excessive secretions named that I ever saw was cured promptly by this, after several other remedies had failed.

Phytolacca Decandra.—Great sense of rawness, and also of dryness, of the fauces; great pain upon swallowing, corresponding in this respect to *Belladonna*; apparent extension of the inflammation into the Eustachian tubes, with shooting pains into both ears upon swallowing; dark

red or purple color of fauces, although the latter is very characteristic of Lachesis also. "Feeling as if a ball of red hot iron had lodged in the fauces and whole length of the œsophagus, when swallowing."

THIRD CLASS.

Aconite.—If diphtheria should commence in a sthenic constitution, with high inflammatory fever; a full, bounding pulse, and a bright flush of the whole pharynx, as far as can be seen, Aconite should be given, but no longer than till the violence of these symptoms is subdued, and then follow with the more appropriate diphtheritic remedy. Such cases, however, are not common.

Arsenicum.—This remedy has very similar symptoms to Arum, especially excessive burning and dryness of mouth and fauces; with acrid discharges from the nostrils, or *acrid water flowing freely from them*, and should be given the preference if there is great dyspnœa upon lying down, or impossibility of lying down unless the head is bolstered high, and if there is extreme thirst, though drinking but little at a time.

Very great prostration; great restlessness after midnight; and a dry, wrinkled appearance of the membrane are additional indications for this remedy. In some gangrenous tendencies, also, where Lachesis may fail, this would be the remedy. Were I to draw a distinction, in this respect, between the two remedies, I would say, Lachesis more especially for the more rapidly developing gangrene, from congestion, in the early stages of the disease, and Arsenicum when it arises later, as a result of corroding and spreading ulceration.

Bromine.—"When the disease *commences* in the larynx and comes up into the fauces, and in some cases in which

it runs down into the larynx and produces a croupy cough, with much rattling of mucus. In either case there is rattling of mucus in the larynx on coughing, and the cough has a croupy sound.”—*Guernsey*.

Cantharis.—Should the well known urinary symptoms of cantharis arise to complicate diphtheria, such as frequent and very painful micturition, with passing but a few drops of urine at a time, and this often bloody, this remedy should be administered until that symptom is relieved, and then return, if necessary, to the more characteristic diphtheria remedies.

Lachnanthes.—“If the child *has a very stiff and painful neck, drawn to one side*, with diphtheria.”—*Guernsey*.

Sulphur.—“The whole back part of the throat posterior to the palatine arch appears to be in a condition of ulceration and sloughing; very quick pulse; flashes of heat; frequent sinking spells.”—*Ibid*.

Other physicians would, no doubt, add other remedies to the foregoing lists that would do excellent service in some cases, but with those named the writer has met with uninterrupted success so long that little or nothing has been left to be desired in addition thereto. Of course, epidemics of diphtheria may arise wherein the relative prominence of the medicines given might be changed for a single epidemic, or new ones added; but, as a whole, those named must ever continue to occupy a most prominent place in the successful treatment of diphtheria; as do Camphor, Veratrum, Cuprum, Arsenicum, Ipecac, Secale, Sulphur, etc., in the successful treatment of cholera.

The beginner should understand that it is not necessary that all the symptoms of any one of the remedies named must be present, to have that remedy indicated. In some instances, where only two or three of them exist, but in such

prominence as to overshadow everything else, then he may trust very confidently to the medicine that those few symptoms clearly call for.

It should be further understood, also, that there has been no attempt to give all the characteristic throat symptoms of the various remedies, but only the more prominent, and especially such as the writer has most confidently relied upon.

Treatment of Paralysis.

As may be inferred from the statement that I have never seen paralysis, or other serious *sequelæ*, follow the proper homœopathic treatment of diphtheria, I have little personal experience upon this subject to offer; but, at the same time, there can be little doubt, that in paralysis of the pharynx following diphtheria, the remedies that were best indicated in the primary affection, will be among the best for this secondary condition, provided they were not then given, and the physician can determine what they were. In addition, the following list of remedies is given to select from, but each according to its specific symptoms, in cases of pharyngeal paralysis: Causticum, Lachesis, Belladonna, Cocculus, Nux vomica, Kali bromatum, Cicuta, Argentum, Baryta, Dulcumara, Opium, Hyoscyamus, Stramonium.

In cases where it is possible to anticipate paralysis of the heart, Tabacum would, no doubt, be one of the best remedies that could be administered. At least, in cases of apparent threatening of paralysis of the heart or lungs, in old people, I have secured better results from this, in the zooth potency, than from any other remedy. Ipecac, Aconite, Sambucus and Tartarus emeticus should, however, be considered in addition, more especially, perhaps, in the case of children; and Lachesis, Opium, Arsenicum, Baryta carb., and Carbo veg., besides Tabacum, for old people.

For dimness of vision that might indicate a threatened paralysis of the optic nerve, Belladonna, Atropinum, Gelseminum, Conium, Hyoscyamus, Phosphorus and Stramonium would be the more prominent remedies to be consulted.

Other forms of paralysis, as well as other *sequelæ* of diphtheria, must be studied and treated, each case according to its individual symptoms, or other indications, which the limits of this volume will not permit of further elaborating.

Potencies of Remedies.

Under this head I have not the slightest hesitation in saying that it is much safer, and results will be more uniformly satisfactory, if nothing less than the thirtieth centesimal potency of any of the remedies is prescribed, and the two-hundredth and upwards are better still. And this, let it be distinctly understood, is not asserted upon blind faith, prejudice, or other unworthy sentiment or motive. I have given every potency from the tinctures to the highest, and made the most careful observations I was capable of, but was not uniformly successful in the treatment of diphtheria until I commenced giving the two-hundredth potencies and upwards, upon the indications laid down in the preceding pages. So, if experience is worth anything, and is to be the test, a continued success for fifteen years ought to have its due weight.

REPETITION OF DOSES.

This is by far the most important question in the whole range of our discussion, with the two exceptions of selecting the right remedy, and avoiding all irritating local treatment. Indeed, it is often of equal, if not of greater im-

portance than the selection of the right remedy, for this may never be better chosen, its too frequent repetition will be certain death to many patients, whereas the greatest caution to avoid that will be rewarded with the most brilliant cures. Let me here, again, be clearly understood. I do not say that a frequent repetition of doses will be death to all patients suffering from diphtheria, who are so treated, or even that all severe cases would be rendered fatal by it; but there are, nevertheless, many delicate, sensitive children whose lives would be sacrificed thereby, that might be restored to sound health by due caution in this respect. Three or four years of failures—that is to say, losing several cases out of a moderate number treated; and fifteen years of subsequent uninterrupted success, up to the present time, curing *every* case, and to the number of several hundred, without losing one, or having serious *sequelæ* follow in a single instance, lead me to lay down the following rule, that should be implicitly obeyed in the treatment of all cases of diphtheria:

Never give more than the second dose of any one remedy, even in the highest potencies, without waiting two or three days, and giving a dose or two of one or more other remedies that may be called for, before returning to the first; and never give even the second dose without such waiting, if the first has shown a good and continued effect, for twelve to twenty-four, or more, hours.

If the case is a very urgent one, that is, the disease is getting rapidly worse, a second dose of a remedy that is clearly indicated may be given in three or four to eight or twelve hours after the first, according to the urgency of the symptoms, if the first dose affords no relief; but if the second dose shows no favorable effects in a few hours, it is a loss of time and a risk to the patient to continue this remedy. And let me here assert, positively, that the more

acute the case, or greater the suffering, the quicker will be the relief, from the best indicated remedy ; so that we need not wait so long in such cases before giving another remedy, if the one that has been administered does not relieve. Two or three hours might be all we ought to delay in an occasional violent case, but those which really demand a second dose, or a change of the remedy, in that length of time, are not common.

The physician must, therefore, observe very closely, and know what are really curative effects ; and above all things he must avoid hasty conclusions or action, excepting when there is immediate danger. While this is a disease that tolerates no great delays, it is much less tolerant of mistakes, or the haste that leads to doing the wrong thing, or administering the wrong remedy. Under no circumstances does the old adage that "haste makes waste" apply with more truth or force than here, unless the haste leads to doing exactly the right thing. The motto should be: Watch carefully and wait patiently for the development of the effects of the single dose, when the right remedy has been administered. Often a single dose will be found to be all that is required to rapidly cure the whole diphtheritic process, leaving, if anything, only a few unimportant symptoms that may require another remedy ; but not always even that, if the full curative effect of the single dose is waited for.

Let not those, now, who have no experience in this respect, jump to the conclusion that this delay will be long. *The most rapid, the most beautiful, the most brilliant cures are often wrought in this way* that it is possible to conceive of in so grave a disease. It is also the safest during all stages ; and, what is of almost equal importance, the freest from risk in leaving dangerous or annoying *sequelæ*.

Allusion has been made on a preceding page to the fact

that greater soreness of the throat is often complained of by the patient when the membrane becomes detached than at any time before. The reasons for this are very simple: An entirely raw surface of all the parts covered by the membrane is left when that is cast off; consequently there must necessarily be more pain on deglutition over said raw surface than before it was uncovered; but this has rarely lasted more than a few hours under the writer's observation, and it is called up in this connection to say that it will cease of itself under the continued curative action of the remedy that brings about the detachment of the membrane; so that no excuse is even here afforded—or, at least, but seldom—for changing the medicine, or repeating the dose of what had been given. If an occasional case is encountered where the soreness is great under such circumstances, and continues too long, a single dose of *Belladonna*, *Arum*, or *Phytolacca*, according to symptoms, will be all that will be required to cure it.

Did I stand entirely alone in the profession upon this question of a repetition of doses, I should nevertheless insist upon the rule I have laid down none the less strenuously, as my whole professional experience of twenty-eight years sustains me in it. Having lost one case in every five to ten treated before adopting the rule, and never having lost a case or had an unpleasant result out of the several hundred treated since adopting it, leaves me no alternative but to earnestly urge its adoption by others. Had I lost no more than two or three out of every hundred cases I should speak with much more reserve; but, as it is, I should be false to myself, to the profession, and to the sufferers, did I not insist upon the great importance of this method of treatment.

But, fortunately, I am not alone in my claims or experience in this respect. Recently I wrote to Dr. A. Lippe,

of Philadelphia, for the clearest points in the indications of some of the new remedies that he could give me, but said nothing to him upon the subject of the repetition of doses. Furthermore, I knew nothing previously of his ideas or experience in this regard with diphtheria, and he knew nothing of mine; but in his answer, after giving me a few indications that I did not previously so fully understand, and for which I have given him credit, he says:

“The great point in the treatment of these *grave* diseases is, to my mind, to give the single dose and wait. Many a case have I seen end fatally when the proper remedy was promptly selected first, but had been frequently repeated, aggravating the disease beyond all hope of recovery. One of the worst cases of diphtheria I cured a month ago with one single dose of *Lac caninum*: the improvement set in promptly, and continued till the child was well.”

In this, then, we have the unsolicited testimony of one who has had many more years of experience, and is otherwise better qualified to judge, confirming all my successful treatment in the most emphatic manner; and it would be well if all would heed what he says. It should be added, moreover, that this corresponds fully with Hahnemann's later teachings, after he had had the greatest experience in treating all forms of disease.

But, what is of still more importance than the experience of any one, or small number of physicians, we can again appeal to and find confirmation in nature, to settle the point in question. One breath of air, laden with the virus of small-pox, scarlet fever, measles, whooping cough, yellow fever, cholera, and even of diphtheria itself, in all instances where it spreads by contagion, is all that is required to prostrate the most vigorous child or man with the like disease. That is to say, *one dose* of such poison, in the most infinitesimal form it is possible to conceive of

matter being, is sufficient to, and does, bring down the strongest man or child to days and weeks of great suffering, and often to death, and that, too, from their strongest vital conditions of resistance to it. Is it an extreme view to take, therefore, that one dose of the truly curative medicine in a given case will accomplish so much, or even all that is necessary in the cure of that case, when the disease has so weakened the resisting powers of the system, and wrought up to the highest point the susceptibilities of the patient to that medicine? It seems to me not; and especially so when I can appeal to such a long and successful experience to sustain the claim in its fullest extent.

But, again, do we find the fullest confirmation of this view, or principle of treatment, in the most remarkable and familiar example of preventive and curative measures for one disease, known to the professional mind. I allude, of course, to vaccination, and its prevention of small-pox, by a single application. One breath, or dose, of the infection causes the disease; and one introduction, or dose, of the counteracting infection, namely vaccine, entirely prevents it; that is, destroys the susceptibility of all for years, and of many for a whole life time, to one of the most loathsome and deadly diseases to which mankind is subject. Nor is this all. Vaccine is equally curative as well in the single dose. That is to say, any time after the susceptible subject has been exposed to small-pox, and before the eruption has appeared, vaccination with fresh, pure cow-pox virus is the best agent to rely upon, to cure the case, of any that can possibly be administered. That it is curative, after the premonitory symptoms, such as fever and pains in the loins, appear, and even during the first stage of the eruption, none will deny. And the one dose of it is all that is necessary for the cure. A second vaccination is superfluous, if not positively injurious, and not to be thought of or tol-

erated, unless there is reasonable doubt as to the virus being good, or of its having been properly introduced. Can it be possible that nature furnishes us with this one great and striking example, that we must obey in one disease, if we would do the right thing for our patient, and there stop without an application beyond? We know that such is not the case in any of her great principles.

It is in this way, then, that the Creator has evidently appointed benign forces, in every instance, to prevent or overcome the malign forces of nature, for our good, when we learn what they are and how to apply them. And if the one administration of the benign agent is sufficient to prevent, and also to cure when employed in time, so malignant a disease as small-pox, is it probable that frequently repeated doses of the truly curative agent are required to cure other diseases that are not more malignant than it? Certainly not, if my experience in many other serious cases of disease, besides diphtheria, may be taken as a guide.

To those who understand fully the teachings of Homœopathy in regard to the similimum, I will simply say, in addition, that this should be as complete, and as exact to nature's methods, both as to how and where the disease *commences*, and the single dose of medicine to antidote the single dose of the poisonous infection, as should be the similimum in the symptoms, in order that the remedy may do its best in the cure. Is there anything irrational or unscientific in this? Clearly not, if there is anything in the claimed similimum between the effects, or symptoms, of the remedy and those of the disease, to ensure a curative result. It is simply carrying all these points out to their consistent and legitimate conclusion.

It might be further added here, also, that but for a scrofulous, syphilitic, or other taint of which the patient may be possessed by inheritance or otherwise, being aroused into

activity by diphtheria, to complicate the case or some of its results, rarely would more than one remedy, or more than a single dose of that, be required to cure any possibly curable case, unless a distinct change of symptoms should arise as the disease progresses. This, of course, is based upon the assumption that the exactly curative remedy is the one selected and administered. Indeed, I have often cured what appeared to be the worst scrofulous complications of diphtheria, as well as the whole diphtheritic process itself, with one remedy and only a single dose of it, leaving nothing further to be done. The case reported under Bryonia was one of this kind, the child possessing a markedly scrofulous diathesis, which was aroused and very seriously complicated the case; but all its active symptoms, as well as those ensuing from diphtheria, were cured in the most rapid and permanent manner by *one dose* of this drug.

In conclusion of this branch of our subject, it is not claimed that the course of treatment marked out, however implicitly followed, will cure *every* case of diphtheria that may or can arise, as it has all that have come under the writer's fifteen years of observation and successful treatment; because it is not claimed that all cases are curable, even should not the slightest mistake be made in the remedy administered, in the potency, in the repetition of doses, or in the hygienic management of the patient. There will continue to be cases of heart-clot, of rapidly developing gangrene of the fauces, to which allusion has already been made, and of other extreme malignant action, under which the patient must inevitably die; but the treatment laid down, with the addition thereto of a few other remedies for individual or peculiar cases, and perhaps for some epidemics, will certainly reduce the mortality to the minimum that it is possible to reasonably hope for, in the extreme cases named, and almost or quite to zero in all other classes of cases.

Lachesis, in the single, or, at most, the second dose, would certainly cure some cases of threatening gangrene, were the first dose given at once, and not repeated too soon, or at all unless really necessary, if we may rely upon what it has done in the cure of other cases of gangrene, and in many of the most malignant cases of diphtheria.

The claim of having treated so many cases, or all that have occurred in my practice during so long a period of time as fifteen years, and every one successfully, has not been uttered boastfully, nor yet without hesitation as to the propriety of putting the fact so prominently forward; but it being the simple truth, the question has been with me: Should it be withheld? I can certainly see no valid reason, aside from that of modesty, why it should; but, on the contrary, every consideration of right demands its promulgation. To be more definite as to numbers, they reach three hundred and fifty to four hundred patients; and in this number, let it be understood, that not a case is included that did not show the characteristic exudation, or membrane, of diphtheria; nor are cases of scarlet fever, with diphtheritic complications, included. And I do not now recall a case of the latter complication where there was not violent brain disease as well, that I have lost in the same length of time; and but two or three even of such cases.

Failures and Successes.

No way occurs to me by which the wrong and the right Homœopathic treatment of diphtheria can be better impressed upon the mind of the reader, than by giving in detail a few cases showing my own failures under the one and successes under the other method of administering our remedies.

Seventeen years ago I was called into a family where two children were attacked with diphtheria ; but neither of them were what I would now call alarming cases for the first few days of their sickness. I consulted all the writings then known to me upon the subject, in our school, and watched my patients closely. Doses were repeated every two, three, or four hours, according to the apparent urgency of the symptoms, and several remedies that appeared indicated were given alone, or in alternation ; among which were *Belladonna*, *Lachesis*, *Mercurius*, *Rhus tox.* and several others. But they made no impression in relieving the younger of the two patients, a boy of three years, though the other did appear to be some relieved by them for a few days. Becoming more anxious for the former, not, however, because there was an increase in the severity of symptoms, but for their continuance, I made a most careful comparison of many remedies, and concluded to prescribe *Nitric acid* and *Carbo vegetabilis*, in the sixth centesimal potency, in alternation, every hour. Visited my patient next morning after deciding upon the above-named medicines, and found to all appearance the same conditions as the day before, and not the least indication of more danger than there had been the two or three preceding days. Pulse was about ninety-six per minute, full and perfectly regular, the child strong enough to raise in his crib and help himself to water standing upon the table alongside, and all other appearances as favorable. Prepared the remedies named, in solution, about one-third of a drachm of pellets to half a goblet of water, and gave a tea-spoonful dose of the *Nitric acid* first. Saw an alarming change come over the face of my little patient in a few moments, which there had not been the slightest indication of before ; felt his pulse at once and found it completely broken up, so rapid, small and weak that I could not count it. Attributing this to

some temporary disturbance that would soon pass away, and being in a hurry to visit other patients, orders were given for Carbo veg. to be given the next hour, and Nitric acid the hour following that. When the time for this second dose of the latter arrived, it was given him, and he died in two or three minutes, without a struggle; and, as I have ever believed, was hastened out of the world by Nitric acid. From the effects of the first dose of it, till death, there was no dyspnœa, or other indication of heart-clot, or of paralysis, to account for the sudden and unexpected result, but a sudden overpowering of the weakened forces of life, by the medicine; and why not from the power of infinitesimal doses of medicine, in some instances, when the susceptibilities are wrought up to their highest pitch by disease, as well as from the power of still more infinitesimal agencies in the virus of this and various other diseases, upon people in *health*, in multitudes of cases?

The other boy lingered on several days longer, and he, too, finally died, from metastasis of the disease to his bowels; brought about, no doubt, also, by overdosing him with the third to the sixth potencies of remedies frequently repeated.

I have no doubt I gave both patients the curative remedy, or remedies, in the early stage of their treatment, and would have cured both had I known then what few or none did know at that time, but which I learned afterwards by still other sad experience, namely, to avoid the repetition of doses as long as possible, and allow a full reaction from the one dose to establish and exhaust itself before repeating the same or giving another remedy. Both patients, I furthermore fully believe, could have been saved, or that I could cure just such cases now, by carrying out to the letter the treatment laid down in the preceding pages.

A few months after losing those two patients I was

called two or three miles into the country to visit a young lady in her twentieth year, who had been brought down to her bed two or three days before with a most violent attack of diphtheria. Her room was, without exception, the most putrid in its odors of any that I ever entered, and the fetor of her breath was intolerable. Her tonsils, uvula, and the soft palate were so swollen that it was impossible to see what were the conditions of any of the parts beyond the anterior surface of the organs named. Purulent and putrid mucus was discharged freely from the nostrils, and expectorated in large quantities from the throat, and I felt that there could be no doubt that the patient was on the verge of gangrene of the tonsils, if she had not already reached that condition. The constitutional indications or symptoms of the patient were also about as alarming as those named of the local disease. Pulse was very weak and rapid, swelling of the neck and face, great pallor and expression of distress of the countenance, and other equally serious manifestations of suffering and danger.

Here, then, were the conditions that unmistakably demanded *Lachesis*; and because it was so markedly indicated for the putrid or gangrenous tendencies of the disease, and because, also, of such disastrous results in other cases from frequently repeated doses, I determined to, and did, administer it in a single dose, in the 800th potency, and trusted to results. At my visit the next day I found that the changes that had been wrought in the twenty-four hours were truly marvelous. The terrible odor of her room of the day previous, and even of her breath, had almost wholly disappeared, her pulse had been greatly lowered, and was both fuller and stronger, the pallor and distress of countenance had given place to a much more natural expression, and she had been able to swallow a little liquid food, the first in two or three days. Upon examination of the fauces I found every ap-

pearance there also greatly improved. The swelling was so much less that the inner surface of the tonsils and posterior wall of the pharynx could be seen, and I then found the extensive membranous exudations that I was confident the day before must exist, but which it was impossible to get a sight at, on account of the great congestion of the parts. Every other feature of the case having been so greatly relieved, and it being probable that the exudation itself had also been improved, it seemed wrong to interfere by giving more medicine: therefore the case was left to the fuller development of the curative powers of the single dose. The next day, or forty-eight hours from my first visit, every alarming or even serious symptom of the disease had given way, the membrane was much less in amount and of better color, the patient was taking much more freely of liquid food, and was rapidly gaining in strength: consequently she was left another twenty-four hours without medicine; and from that on till her full recovery of health she needed no more. I made her but five visits in all, and, at my last, cautioned her against exposures for many days; but, on the seventh day from my first visit, she rode into the city to witness the departure of a regiment for the war, in which she had friends, and suffered no evil results from it, but rapidly regained all her former strength and vigor.

This was the first case of diphtheria I had ever dared to trust to such a method of treatment; and such is the force of one's teachings, and the difficulty or refusal of the mind to accept evidences of effects from such imponderable and intangible forces, that, notwithstanding this one brilliant result, I at once relapsed back into former methods, and lost several more cases. One of these I will detail in short, for its unusual results.

The patient was a young man in his seventeenth year. He was not so severely attacked as many, and his symptoms

were not alarming at first, but became so from difficulty in lying down, and nervousness, restlessness and sleeplessness that arose to further complicate the case. The exudations, and some of the other more common symptoms of the disease, besides those named above, were not so severe as I have witnessed in many cases where the patients recovered. He had been complaining, though not seriously, for two or three days before I was called, and the case went on to a more marked difficulty, or impossibility, of lying down, and greater restlessness, until the evening of the third day of my attendance, at eleven o'clock, when he suddenly sprang to his feet from the chair in which he was sitting, struck his chest violently with his clenched fists, and fell dead upon the floor before his attendants could reach him. His sudden death was, no doubt, due to a clot of fibrin in the heart, which finally became of such size as to wholly obstruct one of the cavities of that organ, when all further circulation, of course, ceased.

This was the first and only case of death from diphtheria that I have ever seen where I could satisfy myself in the least with the reflection that it was inevitable; and even here I had, and still have, my doubts. That is to say, could we know from the first the exact remedy that is homœopathically indicated in such a case, and administer one, or, at most, two doses, and await the result, and then give a dose or two of the next best indicated remedy, if further medication were required, I believe that some, if not all, of even such cases could be saved. The philosophy of cure would be to stop the further waste of albumen as soon as possible, and aid nature, or the system, in casting out of the circulation the excess of fibrin, either in its fluid form, or as an exudation, and thus prevent its accumulation in sufficient quantity in the circulation to organize into a clot in the heart to arrest its action. And all this is just what the remedy exactly indicated by the totality of the symptoms does in many desperate cases.

The remedy which appeared to me then and since as best indicated in the case was *Lachesis*, and I administered it in successive doses, in the 6th to 12th potencies, at two to four hours intervals, and in alternation with either *Belladonna*, *Mercurius*, or *Arsenicum*; but, if results, during those three years, in other cases that I lost, and since, in saving all, may be taken as proof, I hastened that young man out of the world, even if his life could not have been finally saved.

And still I went on in the same general course of treatment to the extent of losing several other patients of this disease, until I became thoroughly aroused to put in execution the other method that has been outlined in the preceding pages, with the satisfactory results already named.

Passing by many other interesting and important cases in the succeeding three years, or from 1865 till 1868, all of which were cured, I will detail two that were of much interest to me, from the clear indications they furnish for two remedies. In the last named year, and three days after the death of the little four-year-old boy, of whom I have already spoken as having died so quickly of gangrene, I was called into the same family, to the eldest child, a boy of twelve, who had been severely attacked the night before with diphtheria. From the closest questioning of both him and his mother, nothing definite could be gathered as to the manner in which the disease began, whether upon the one side or the other, or in what other manner, excepting that little or no soreness of the throat was complained of, and from the first there had been an exceedingly free flow of mucus from the nostrils and throat, the latter keeping him almost constantly swallowing or expectorating. Examining the fauces carefully, I found the right tonsil the most swelled, and presenting the most exudative patches (these being small and several in number); consequently gave *Lycopodium* 6000th, one dose, and awaited results. There be-

ing no satisfactory effect from this, after a sufficient time had elapsed, but, on the contrary, the disease steadily advancing, I then gave *Lachesis* 2000th, one dose, hoping this might stay the symptoms, though not satisfied that it was really indicated. But it had no better effect than the preceding ; therefore, in due time, I prescribed *Belladonna* 2000th, and other remedies in high potencies and the single dose, with no better results.

Four or five days were thus taken in efforts to find the curative remedy ; but they were not wholly lost, as, in the meantime, indications came up that could leave no doubt as to the medicine required. The mucous discharges from nostrils, throat and mouth, which were free from the first, became the most excessive that I have ever seen in any kind, or case, of disease ; and with all of that there arose also excessive salivation. The mucus was in part purulent, and in part stringy and translucent, and so profuse was it and the discharges of saliva, that these secretions would completely cover both sides of two large pillows, and, in addition, thoroughly saturate his night dress to the waist, and the sleeves to the wrists, in a single night. There could, therefore, no longer be any doubt that *Mercury* was the remedy homœopathically indicated, and I gave *Mercurius solubulis*, in the 3000th potency, one dose. A more favorable effect of medicine could hardly be desired than resulted from that dose. The night following there was not half the quantity of mucous and salivary secretions, and in two or three days they wholly ceased, while all other symptoms rapidly subsided, leaving only the debility, which was also soon recovered from, and health fully restored without further medication.

It should, moreover, be stated, in order to show the great severity and danger of the case, and to prove the greater efficacy of the medicine, that quite a serious delirium arose

to complicate the symptoms; also the characteristic rash of some of the worst cases; not scarlet, however, but of a deep red or almost purple hue, more particularly upon the forearms and hands, and upon the legs and feet.

Now, if it should be thought that too much risk was run in this case, by the delay in finding the right remedy, let it also be borne in mind, at the same time, that death is the end of every similar case, or, at least, of nearly all such, under the ordinary methods of treatment: therefore, there would have been no hope in that direction. A most valuable indication, too, was confirmed under the most desperate circumstances, the patient's life saved, and he restored to sound health, notwithstanding the loss of valuable time. Furthermore, no other remedy would have saved his life but *Mercurius*, while this in frequently repeated doses would have destroyed him. No physician need again, however, lose time in a similar case, if he reads and follows the lesson this one affords. The very fact of my taking the time to, and at last getting the right remedy, instead of rushing into other and wrong treatment, furnishes, moreover, no small degree of security in all similar future cases, which is not a trifling consideration.

To those who have no experience in this way of prescribing, I will say, they can little realize how long some of the most desperate cases hold out, if no injury is done them by other treatment, to give the opportunity for finding the right medicine, or how rapidly such patients, especially children, will recover under it when finally given. Then, too, the confidence the result gives the physician in prescriptions for other like cases, enables him to save life where he otherwise could not. The clearest and most reliable indications for our remedies that I have ever secured have come in this way, and nothing else could have given me such confidence in *Homœopathy* for all diseases, and under all circumstan-

ces, as has this. If all physicians who have practiced, or professed to practice, our system, had done the same, what a fund of the most trustworthy indications we would long ago have secured, in nearly all diseases, to turn to in the most trying emergencies, instead of the Babel that now prevails.

Another fact and I have done with that case. The membranous exudations in the throat, which were at all times present from the first, and continued on until two or three days after improvement began, were mostly small, that is, of the size of the finger nails and less, and were frequently cast off and renewed. But their aggregate amount did not evidently represent the quantity of fibrin that must have been left in excess in the blood, by the excessive flow of mucus and consequent large loss of albumen—and for this reason, no doubt, that such excess must have been washed away in its fluid state, or in molecular granules, by the profuse discharges, as already pointed out, so that it could not organize into a membrane.

A brother of this boy, two or three years younger, and the only remaining child of the family, was also attacked with diphtheria a day or two after him. His disease commenced upon the left side, and I gave him Iachesis, but the case went on quite rapidly, developing into more of a phlegmonous inflammation, with more membranous exudation, than his brother showed at any one time. Active and continuous delirium also arose in a day or two, and about the same time, or soon thereafter, a bright scarlet rash, much like that of scarlet fever, appeared upon his chest, arms and legs. As soon as these more active symptoms manifested themselves, he was given one dose of *Bel-ladonna* 2000th, with as satisfactory an effect as could be desired. The delirium and phlegmonous condition of the throat were both greatly relieved in twenty-four hours, and by the next day or two all symptoms were reduced to the

mildest form, and a rapid and complete recovery followed in a few days, under one dose more of Belladonna, and a single dose each of one or two other remedies for other symptoms.

Passing over the following nine years, and a large number of interesting and important cases, I will give one of great violence, that occurred in 1877, in an unmarried lady of about thirty, and which had passed out of mind, until she called upon me a few days since. The great feature of her case was the enormous swelling of her tonsils. They swelled until their inner surfaces pressed closely together, and still continued swelling until they pushed the uvula, palatine arches, and finally the tongue, so far forward that it was with difficulty the latter was kept within the mouth, though itself little, if at all, swelled. After the swelling had receded so that the inner surfaces of the tonsils could be seen, the antero-posterior diameter of them was then more than two inches. The membranous exudations upon said surfaces, now for the first time seen, were also extensive, two inches or more in length, very thick, of a leaden or darker color, and almost putrid. For several days it was with the greatest difficulty that a tea-spoonful of water, milk or broth could be swallowed. Constitutional symptoms were also of a most serious character. Restlessness was so great that it was impossible at times to keep the patient in bed; and there was no sleep, excepting a few minutes at a time, for several days and nights. The mucous discharges were very profuse; nostrils ulcerated, with purulent secretions therefrom; and at the height of the swelling of the tonsils, the sides and front of the neck became swollen and quite distinctly livid, and the lips and face somewhat so.

The treatment was Lachesis 2000th, two doses, one or two doses of Belladonna 2000th, and one or two of Apis 200th, at intervals of twelve to twenty-four hours, until the

swelling was much reduced ; then one dose of Arsenicum 8000th, for the great restlessness and appearance of acrid ulceration of membrane upon tonsils ; and, finally, a dose each of Kali bichromicum, Arum, Mercurius, and one or two other remedies, in the higher potencies, and according to symptoms, for ulceration of mouth and lips, and other symptoms, during convalescence. To close, the cure was completed in two to three weeks ; and, at her recent call upon me, she expressed delight that her health had been better since than before, and that she had been entirely free from chronic throat troubles, which others who had had diphtheria, told her had followed them for months, and some of them for years, after much less severe attacks than hers.

The mother of this patient, a lady over fifty, and very stout, or fleshy, also had a very severe attack of diphtheria, as the daughter was getting better, evidently taken from the latter. Her attack commenced upon the right side, the tonsils were much swollen, with extensive deposits upon them, and other serious symptoms. One dose of Lycopodium 6000th, improved her case rapidly, for two or three days ; and a dose of Belladonna, for symptoms that arose calling for it, fully cured her in a few days more.

A Mercurius case, the exact opposite to the one given on a preceding page, in this, that there was extreme suffering on swallowing, occurred in my practice a year ago last winter. It began in the left tonsil, like acute tonsillitis, with great swelling, and soon developed severe pain on deglutition. I first administered Belladonna, which afforded no relief, then Lachesis, with no better results, but in the meantime—twenty-four hours or less—extreme salivation arose, and with it considerable exudation. So profusely did the saliva and mucus flow, that it kept the patient—a young lady of seventeen—constantly expectorating or

swallowing, the latter act being attended by the greatest suffering. I then gave *Mercurius* 3000th, a single dose. In an hour, or less, the relief to both the soreness and salivation was apparent, and continued many hours, so that I had to give but one dose more of *Mercurius*, and one of *Belladonna*, to fully establish the cure.

One of the most distinctive symptoms, therefore, calling for *Mercurius*, in any kind of throat disease, is profuse salivation, and this will often govern in the choice of this remedy without so much regard to other symptoms, providing the patient has not been previously drugged with *Mercury*.

Coming down now to this last winter, I will give a few cases, and close this already too long list. February 15th I was called to a little girl in her sixth year, who had been five days sick of diphtheria, under allopathic treatment, and vigorously dosed, gargled, cauterized, saturated about the neck with petroleum, and blistered, till the case was one of the most serious in character. She belonged to a markedly scrofulous family (the father an almost habitual drunkard from his boyhood), and she was herself an unmistakable scrofulous subject. The disease commenced in the right side of her throat; and, upon examination, I found both tonsils greatly swelled, the right, however, the most, and extensive exudations over tonsils, uvula, and posterior wall of the pharynx, but the thickest and worst in appearance upon the right side. In addition, there was almost constant streaming of purulent mucus from the nostrils, and drooling of mucus and saliva from the mouth. I administered *Lycopodium* 6000th, one dose, and allowed it to act until the next day. Upon examination of the fauces then, and under the retching effort of the child when depressing her tongue with a spoon, a mass of thick, dirty membrane, an inch and a half long, and an inch wide, was

cast off from the right tonsil upon the tongue. All other appearances of the throat were also much better, the mucous discharges from mouth and nose had nearly ceased, and all general conditions were as happily improved. Further medication being, of course, uncalled for under such circumstances, the patient was left, still on the single dose, another twenty-four hours, when there was scarcely any exudation left upon any part of the fauces, all discharges of mucus had ceased, and improvement in constitutional symptoms had been so great, that I did not consider it necessary to visit the child again, but gave strict orders as to her case, and she made a most rapid recovery of all the then attending symptoms of her disease. Three or four weeks subsequently, however, she was the most seriously threatened with paralysis of the pharynx of any case I have ever treated ; but which, I am confident, was solely due to the great violence of the treatment she had received before I was called. So violent was that treatment, and so terrified had the child been by it, that she was almost thrown into convulsions by the simple operation of endeavoring to depress her tongue with a spoon, at the time the paralysis threatened. How terrible to treat a delicate child in that way, when all the susceptibilities of its nature are wrought up to their highest point by disease. Can anything else but disaster be expected of such violence? Happily, however, in this case the threatened paralysis was averted, and all traces of the disease dissipated, by a single dose each of two or three remedies that the symptoms called for.

While that child was sick, the youngest child of the family, a little boy of two years, was severely attacked, also, with diphtheria. With him the disease commenced upon the left side of the throat, the left tonsil became greatly swelled, and covered with membrane in eighteen hours or less, and one of the external cervical glands upon that side

of the neck became swelled, and pushed out beyond the surrounding surface as large as a walnut. To him, one dose of Lachesis, in the 2000th potency, was administered, which, by the next day, greatly reduced the swelling both internally and externally, as well as removed nearly all the exudation; and in two or three days more all traces of the disease were gone.

Just four weeks after dismissing the little girl cured, I was called again into the same family, to the two oldest children, boys aged respectively seventeen and fifteen, and both of stout and robust build, but, nevertheless, of a markedly scrofulous diathesis. The older of the two was much the more violently attacked, and his case will be given first. I found him sick in bed, had complained all of the day before, grew rapidly worse in the evening, and had had a very restless and feverish night. His attack commenced upon the right side, and he still complained of nearly all the suffering being there. The tonsils were both very greatly swelled, the right the most, and the inner surface of both was covered over nearly all of their extent with a dense, dirty, or greyish, membrane. His pulse was 125 per minute, great complaint of "bones ache," and great prostration, and had slept but little all night.

Here was a case to test the efficacy of the single dose, and I gave one dose of Lycopodium 6000th, and trusted confidently to its effects for the succeeding twenty-four hours. Nor was I disappointed. The night following the patient rested much better, had a gentle perspiration most of the night, there was much less suffering, less prostration, and pulse reduced to 115 per minute. The condition of the tonsils and fauces was, however, little if at all changed, excepting that the thickest portions of the membrane, especially upon the right side, had assumed a dirty greenish hue. But this latter fact was not allowed

to decide the question as to giving more medicine. The improvement in all else had been too marked to permit of any doubt that the single dose had acted, and was still acting, most favorably ; and the patient was left another twenty-four hours on that dose. Nor was this a mistake. He continued improving through that day, had a still much more comfortable night following, and a most reliable indication of improvement appeared that night, in this, that an itching of the whole exterior of the neck arose (though nothing whatever had been applied externally), and with it a more profuse perspiration of the whole surface of the body than before. The following morning I found the pulse reduced to 90 per minute, the membrane had commenced to be cast off in pieces of the size of the finger nails, the patient was partaking more freely of food, and I felt no further doubt of the final result, which was a most rapid, happy, and complete recovery ; and all accomplished by the single dose. One or two more facts, however, remain to be added before a final closing of the case. There was more membrane cast off and expectorated by this patient than I ever saw in any other case of diphtheria ; and every day, for three or four days, there was a renewal of considerable patches of exudation, each time lighter in color, until it became perfectly white, then ceased. I visited him six days in succession, and then dismissed him free of all symptoms, excepting some remaining debility, which was fully recovered from in a few days more, and no apparent effects of the disease left. It would be a surprise to physicians, who have seen the lingering convalescence, or the sad *sequela*, of many diphtheritic patients, to see how rapidly even those who suffer the most severe attacks recover their former strength and vigor, when treated in the above manner.

The other boy, aged fifteen, was seriously attacked upon the left side of the throat, tonsils were much swelled, ex-

udation extensive, and constitutional symptoms quite serious; but he refused to give up to it at first, and kept about the house the first day. He was losing strength so rapidly, however, that I had to insist upon his lying down and keeping quiet. Administered Lachesis 2000th, one dose, upon which he made a rapid and entirely satisfactory recovery. It was only four or five days that I had to give my attention to his case, and no threatenings of *sequela* followed.

Two weeks after those two boys had been discharged cured, the mother sent word to me one morning that another of her children, a boy of eleven, was down with diphtheria; that his tonsils were much swelled, and a good deal of membrane to be seen; that the soreness commenced upon the right side, and he had been very feverish and restless through the night. She only wished a prescription, and would send me word next day if he were not better. I sent Lycopodium, of course, one dose, in the 6000th potency, and heard nothing more from the family in ten days or a fortnight. Then I learned that the boy had rested much better the night following, and was still better the next day, so they thought it unnecessary to send for me, and he was fully restored to his former health within a week or less from the beginning of his attack.

A Capsicum case that occurred in my practice last April should also be given. The patient—a young lady, tall, stout and of very robust constitution—was first severely attacked by diphtheria upon left side of throat, which Lachesis 2000th, relieved very speedily. But four or five days afterwards there arose a difficulty in swallowing, as though paralysis of the œsophagus might be threatening, and for which one dose of Coccus 1000th, was administered with a very happy effect; then three days after that another dose of Lachesis was given for a few remaining

symptoms, which cleared up the whole case, and she was dismissed. Ten days subsequently, I was recalled and found the patient went out too soon, was overtaken by rain and got wet, which caused a relapse. From this diphtheria developed again, with the symptom in the throat and down into the bronchi, as though she had inhaled powdered cayenne pepper. Capsicum 200th, one dose, was given for this, and so rapidly relieved the whole case that I had to make but two or three more visits.

In conclusion of these cases, I hope no physician will pass them over lightly, as mere happenings, or fortunate results of the efforts of the *vis medicatrix nature*, and refuse to treat his patients in the same simple and safe manner. During the three years that I continued to lose patients of diphtheria, the happenings were far too common the other way, and the *vis medicatrix nature* did not come to my rescue in many cases when the relief of mind to all concerned would have been inexpressible if it had. While, during all the years since, I have never been anxious for the most severe cases longer than a few days; and that anxiety has invariably been turned into delight, as the reader may well imagine, by the rapid and permanent recovery of every patient, as before stated.

The physician will find much to try his steadfastness of purpose in prescribing in this way; but if he will be firm, and watch closely, he will soon learn, if he does not know it already, how securely he can trust to nature and nature's laws, when he selects and administers the truly curative remedy pointed out by the symptoms under the law of similia. It may be well to say, also, to the young physician, that there should be no delay in changing his medicine whenever there arises a distinct change of symptoms, or an appearance of new ones, that clearly calls for another remedy.

Evidence from other sources of aggravations from frequently repeated doses of Homœopathic Remedies.

Looking back over my own past experience, in various diseases, and seeing unfortunate results where I was less cautious, and much better success when I was extremely careful in the repetition of doses, I cannot doubt that there must have been many instances with other physicians where they have produced serious, and sometimes fatal, aggravations of disease, such as occurred in my own practice of years ago, by giving the potentized homœopathic remedies too frequently; and many times, no doubt, without their being aware that it was the medicine that caused the increasing symptoms. This is one of the most difficult of all questions to decide and come to reliable conclusions upon; and it is frequently impossible to do so at the time, though more mature reflection, and further observation in similar cases, may sometimes satisfy us one way or the other.

Carefully studying others' reports of treatment and results, in specified cases, will sometimes give us clearer vision than we always get from our own observations; and it is in this way that I have, for years, encountered unmistakable evidences in such reports, in the journals of our school, of aggravations of symptoms by frequently-repeated doses of medicine. In many of the cases the aggravations were evidently very severe; and the physician in attendance, becoming alarmed, would change his remedies, when improvement would soon follow, and he would give the last medicine the credit; whereas the one that preceded really did the good work, by being allowed a chance to establish a curative reaction that it could not while it was being administered every hour, or few hours.

One case in point, and of the disease under consideration, I copy from the last, or April, number of the

New York Homœopathic Times, reported by Dr. John J. Mitchell, to illustrate the assumed efficacy of *Phytolacca decandra*. It is as follows:

“Frank C., aged 19, nervous, irritable, and easily frightened. Had seen a case reported as diphtheria about twenty-four hours before he was attacked. When called, found patient aching from head to foot; *tired*, hard ache; throat swollen, and very hard on *left* side; fever high; pulse 120; a pricking on left side of throat when attempting to swallow; bowels had moved in A. M.; little inclination to nausea; headache, with great heaviness of head; very restless, tossing from one side of the bed to the other; hawking of mucus; very hoarse, once in a great while would cough, a little dry cough. The left side being affected, and the condition of the case, led me to prescribe *Lachesis* 30th, in water, one tea-spoonful every hour. Saw patient next morning; found him *worse*; the left side was not any better, and the pain had extended over both sides alike; throat very ugly-looking, covered with grayish-white ulcers; deep pains in the ears, extending along the entire tongue and throat. The boy expressed himself as ‘just heart-sick.’ I prescribed *Phytolacca decandra* 3d, same as *Lachesis*, until better. Saw patient again at night, and the change was wonderful. After the second dose he felt much better; throat almost clean, and all symptoms improved. Was discharged next day but one, well, but very weak; almost fainted upon first attempting to sit up.”

This case is not reproduced here to indulge in unfair or captious criticism, but simply to bring the subject of aggravations by frequently-repeated doses of Homœopathic medicines more prominently before the profession; therefore, I will simply assume that *Lachesis* was the remedy pre-eminently indicated by the symptoms, and would have cured had it had a chance, and that *Phytolacca* received the credit for the cure when *Lachesis* should have had it.

The throat being “swollen and very hard on *left* side”; the nervousness and irritability; the “headache, with great *heaviness* of head”; the great restlessness, “tossing from one side of the bed to the other”; the “pricking on left side of throat when attempting to swallow”; “hawking of

mucus"; and hoarseness, are all among the most prominent pathogenetic symptoms of Lachesis, and just such as this remedy has cured in hundreds of instances, where great care was exercised to avoid its too frequent repetition.

Is it any wonder, then, that after administering it every hour, for many hours, the next morning found the patient *worse*, the left side no better, and that "the pain had extended over both sides alike; throat very ugly-looking, covered with grayish-white ulcers; deep pain in the ears, extending along the entire tongue and throat"? The boy's expression that he felt "just heart-sick," does not convey a more vivid picture of the sufferings from diphtheria than it does of the aggravations from Lachesis when it is too freely administered; and the following symptoms from the *Symptomen Codex*: "*Soreness of the throat, extending to the ears; pain in the œsophagus after eating, pain from the ear to the throat, or from the throat to the ear,*" tell us why "deep pains in the ears" arose, "extending along the entire tongue and throat," and all from the aggravations of Lachesis. Had this remedy been continued every hour for another twenty-four, or, perhaps, twelve hours, death would have been inevitable. But it was stopped in time; and as soon as the system had a chance to react from the hourly impressions made thereon by it, there was a rapid and powerful reaction, and speedy recovery, for which it should have had the credit, but which was, as already said, given to *Phytolacca* instead.

It is in this way that our indications are being continually confused and complicated, until they are almost irretrievably ruined.

The following interesting case, showing, also, a serious aggravation from repeated doses of Lachesis, I copy from the *Symptomen Codex*, vol. 2d, page 34, as given

by the late Prof. Loomis, of Philadelphia, then of Syracuse, N. Y. :

“Was called December 5th, 1846, to see a young lady, act. 19, who had been ten days in this country. Three days previous to my visit, she was attacked with severe pain, of a burning nature, in the right side, and near the point of the tongue. Salivation and sloughing soon followed. From her history, and the appearance of the case, I was led to prescribe Ars. 12, in solution, to be taken in table-spoonful doses, at intervals of from three to four hours. Dec. 6, patient same as yesterday; gave Ars. 6, in solution. Dec. 7, disease had extended along the side of the tongue to the distance of fifteen lines. Surface black and sloughing, accompanied with profuse salivation, and pricking pain, as from needles, in the whole body of the tongue and throat, with inability to swallow; fauces dark red; gave Lachesis 12, in solution. Dec. 8, no improvement; gave Lachesis 400, in solution, repeating the dose once in four hours. Twenty minutes after the first dose was taken, the patient became comparatively free from pain, and continued to improve rapidly for thirty-six hours, when an extreme aggravation followed, the pain returning with redoubled violence, with dread of drinks, especially water; one dose of Samb. n. 12 gave immediate relief from the aggravation, and the case went on (without repetition of Lach.) until the tongue seemed entirely restored, which occurred in five or six days. Some ten days after, the opposite side of the tongue was attacked in the same manner, spreading more rapidly, and affecting the salivary glands and throat more extensively, producing extreme suffering and excessive nervous excitement. The case clearly indicated Lach.; a low attenuation was administered, but with no better result than during the first attack. Lach. 900 was then administered, in solution, with the most prompt and happy success.”

Here we see the power of Lachesis over gangrenous conditions, the great relief given in *twenty minutes* by one dose of it, in the 400th potency, after a lower potency had failed, and the “extreme aggravation,” redoubling the violence of the disease, by successive repetitions of the doses. Had the case been left to the one and first dose, that so greatly relieved, for twenty-four or more hours, and then given but one dose more, or not that unless really

necessary, there would have been no aggravation, of course; and I can have no doubt, from similar experience of my own, that a rapid and complete cure would have followed, without the subsequent attack upon the left side of tongue and throat. And here it becomes necessary to say, that, as a general fact, under my observation, when disease, either through its own inherent forces, or from over-dosing with medicine, passes, or is forced over, from the right to the left side of the body, or, with organs that are double, from the right to the left one, it is an unfavorable indication—the left half of the body, or left of two like organs, being the most vital—whereas, if the action be reversed, and the disease driven from the left to the right side, by the resisting powers of life, or by medicine, it is curative in its tendencies. Hence, I assume that, in this case, the attack upon the left side was due to over-medication, even with the 400th potency, and that this second attack of the disease, or that upon the left side, would have been wholly avoided had the case been left to the one, or, at most, a second dose; and that the patient's vital vigor and resisting powers would have been left much better than was possible after such a violent aggravation from medicine.

Even so careful a prescriber as Jahr gives a case in his "Forty Years' Practice," page 112, which affords an instructive warning, if we will take it as such, against the repetition of doses in diphtheria. He says:

"I must, however, warn very earnestly against the use of *Mercurius* in this disease; for this medicine is not only useless, but, on the contrary, promotes the exudative process. I have witnessed this fact in the first case of diphtheritis which I have had to treat, and which terminated fatally. I prescribed a watery solution of this remedy, in the 12th attenuation, at five o'clock in the afternoon, with instructions to give the patient, a lady, a tea-spoonful every three hours. Next morning found the patches, which, at first, were thin and inconsiderable, increased to tough membranes, of the size of a dollar, and the

thickness of a finger, and had the misfortune of seeing my patient succumb to the disease before evening of the same day."

In this, as will be seen, the warning is against giving Mercurius, under any circumstances, in diphtheria, whereas it should have been against repeated doses of it. There can be no ground in philosophy, or reason, for discarding the administration of a remedy, that may be indicated in any disease, under a law of nature; but both philosophy and experience, if physicians will observe carefully, furnish ample reasons against the indiscriminate repetition of doses in all diseases.

I have never hesitated to give Mercurius in diphtheria, when it appeared to be indicated, but never more than a second dose, and have never seen any bad effects, but, on the contrary, the most happy results from it, in several cases, like the two reported in the preceding pages.

Concluding Case.

As if to put to the severest test, at the very last, one's own confidence in what he advises others to do under the most trying emergencies, a member of my own family was prostrated with the most violent attack of diphtheria, and the most rapid in its developments, of any case that I have seen for years, after the foregoing was all written, and part of it had gone to press. The case was of sufficient interest and importance; that is, it brought out some of the indications for our remedies so prominently, and clearly, that it should be given in detail.

One Saturday morning, last June, the patient, who is stout and generally very healthy, was feeling as well as for years. Indeed, while out shopping that morning, she expressed herself to a companion that she had not felt so well for months. But, an hour or two later, and before her return home, she began to complain of soreness of the

right side of the throat. This increased rapidly, and was soon followed by the characteristic pain in the back and prostration of diphtheria, together with fever, so that by the time of my arrival home at noon, from my morning rounds, I found her seriously ill. Upon inspecting the fauces, I found the tonsils greatly swelled, the right the most, and upon it, running down perpendicularly through the centre of its inner face, a patch of membrane a quarter of an inch in width, and about an inch and a quarter in length. This was not three hours from the time of her first feeling the soreness of the throat.

Lycopodium was, of course, prescribed without delay, notwithstanding the soreness on swallowing was severe—too severe, in fact, as the result proved, for this remedy to accomplish anything in its relief. But so great was my confidence in it curing such distinctly right-side attacks as was hers, and that relief must soon come, I waited twelve hours for one dose, in the 6000th potency, to develop its effects. By this time, the most intense fever had arisen that I ever saw in any case of diphtheria, and as high as I ever saw in any other case of disease, while nearly every other symptom, such as great soreness of throat on swallowing, severe pains in the back and limbs, restlessness, and the like, had increased in almost an equal degree with the fever.

The choice of remedies was now clearly between Aconite and Belladonna; but, on account of the intensity of the fever, which it seemed Aconite must relieve, I gave a dose of it, in the 1000th potency, and waited three hours for its effects. In that time, however, there was not the slightest mitigation in the fever, but all symptoms were on the increase instead. There was great suffering now in almost every part of the body, pain on deglutition was even more intense, with extreme and increasing restlessness (there had been little or no

sleep all night, it being then 4 A. M.), and the case, in all its aspects, had been growing more and more alarming every hour from the first of the attack. Aconite having so conspicuously failed in showing the slightest relief, Belladonna was then given, in the 200th potency, and but one dose. In less than half an hour there was a decided amelioration of the restlessness and other extreme sufferings, and the patient soon fell asleep, and slept most of the time for three or four hours. During that morning and forenoon improvement went steadily on until a little after noon, when there arose that highly characteristic symptom of Apis, namely, "sensation of soreness, lame, bruised feeling, as if from recent injury, from being jammed, bruised, or beaten (confirmed in many provers)," in both sides of the chest, with the addition, in this case, of every rib on both sides, from the axillæ down, paining separately the whole length, like a toothache. These sufferings were the most extreme, she said, of any she had yet had, and it seemed to her as though her sides would actually be crushed in. With this, also, the soreness of right tonsil, which had been greatly mitigated by Belladonna, increased to almost its previous severity, and fever and other symptoms were much aggravated. And now, twelve hours after the dose of Belladonna was given, Apis was administered, in the 200th potency, a single dose. In less than an hour, it gave great relief to all the sufferings, a gentle perspiration of the whole surface broke out, the first there had been from the commencement of the attack, the extreme pains in the sides of the chest were so far relieved, in another hour, that little more complaint was made of their being severe, and all other symptoms yielded in a corresponding degree. During all the night following, a gentle perspiration continued, and most of the hours were passed in tolerably quiet sleep. There was a still further mitigation of symptoms through the suc-

ceeding forenoon, until eleven to twelve o'clock, when all perspiration ceased, a high fever arose, and extreme soreness of right tonsil again returned. This condition was allowed to go on an hour or two, in the hope that it was a temporary aggravation, that would soon pass over of itself; but as the symptoms all increased quite rapidly instead, Belladonna 2000th, one dose, was then again given, some twenty hours or more after the dose of Apis was administered. The effect of this dose was fully as remarkable, if not more so, than that of Apis; for, in twenty to thirty minutes, the patient broke into a most profuse perspiration, which continued on hour after hour through all the night following, and scarcely lessened at all for thirty-six hours or more, and did not cease wholly for two or three days. So profuse was it, that it disturbed sleep not a little, and was otherwise very uncomfortable. But the whole diseased condition was broken up by it, and no symptom remained but debility, which would, no doubt, have been rapidly recovered from but for a serious mistake, both on the part of the patient and myself.

On Thursday, or the fifth day from the beginning of the disease, the patient felt so well that she wanted to get up and dress, which was permitted, without giving the matter sufficient thought. She continued sitting up, and walking about her rooms some, during the most of that afternoon and the next forenoon, until such a weakness through the loins and hips arose, that she could sit up no longer, and had to return to her bed. For this symptom, Phosphorus is one of the most characteristic of all remedies (Sepia being another, but not called for in this case), and it, Phosphorus, was given, in the 3000th potency, one dose. By the next day, that symptom was almost wholly controlled; and, in two days more, the patient was up again; and she then rapidly regained all her former strength and powers

of endurance, without further medication. In fact, although generally enjoying what would be called excellent health, she has since been more active and enduring than before in many months.

I should have said before, perhaps, but did not on account of breaking in upon the rest of the record, that the membrane, which has been already spoken of as more than an inch long and a quarter of an inch in width, when first examined, increased in extent and thickness about as rapidly as the other symptoms, spread all over the right and most of the left tonsil, then upon the uvula and the posterior wall of the pharynx, and became darker in color, until that in itself was not a little alarming. But it improved in appearance, and some of it was cast off under the action of the first dose of Belladonna; then more appeared, with the change of symptoms that called for Apis, but all of it was greatly lessened under the action of this remedy; and yet it was still again renewed to a considerable extent before, or by the time, the second dose of Belladonna was administered. After this had shown its marvelous effects for a few hours, however, or by the next day, the membrane was almost wholly dissipated, and gave me no more anxiety. Moreover, each time it was renewed it became whiter, until it was thrown out very white, and, finally, nearly transparent at various points through it, then ceased.

From the beginning of the attack until the day after the second dose of Belladonna was administered, the soreness and pain, on swallowing, were entirely confined to the right tonsil, although the left was very much swelled, inflamed, and mostly covered with membrane. But, on the day just referred to, the left side of the fauces became quite sore, for a few hours; but this disappeared soon, without medicine, and did not return.

The mucous discharges, it should also be said, were very

profuse from the throat, and quite so from the nostrils, for the first three or four days; hence the waste of albumen was, in the aggregate, very large. And this shows us why the perspiration was so profuse and long-continued, and the relief it gave to all the other symptoms. It was the great excess of water left in the blood, that must be expelled therefrom, to avoid dropsy and the like, and which carried with it, no doubt, a portion of the salts and other soluble elements of the blood, in solution, thus ridding the system of their excess, also, and of their disturbing influence. The whole surface of her body was covered with a sort of glutinous, or gummy, excretion, when the perspiration ceased. How beautifully, therefore, or rather, how perfectly in accord with the wonderful workings of nature in other things, and, consequently, how scientifically do these ideas account for all results of this disease, and for its quick and marvelous cures in the way named.

The case, too, well illustrates the question of changing the remedy upon the appearance of new symptoms. Although Belladonna had acted so favorably, it could not relieve the extreme pains in the sides of the chest that called for Apis; nor could the latter have any further effect after doing its specific work, and the return of the symptoms to those calling for Belladonna a second time.

And now let us turn our attention, a few moments, to the immediate cause of this individual case, and the violence of the attack. A few nights preceding had been very warm for sleeping, consequently the windows and doors had been left open; and, two nights before her attack, a sudden and quite severe change in the weather occurred, a wind arose that gave a cold draft through her room several hours before she was awakened to close the windows. From this she took cold, with the results pointed out. It should be said, furthermore, that the patient has had chronically

enlarged tonsils from childhood, and used to show a distinctly scrofulous diathesis. In fact, the first time I ever saw her she was given up by friends and physician to die of tubercular phthisis, from which, however, she was rescued by Kali carbonicum, it acting as marvelously, though, of course, not as quickly, as did Belladonna or Apis in this last sickness.

A point or two in treatment also requires further elucidation. The conspicuous failure of Lycopodium to accomplish anything in relief, or even to place the slightest check upon the rapid progress of the disease, has been seen, notwithstanding the distinctly right-side commencement of the symptoms. But all this is susceptible of a satisfactory explanation. This remedy has not the extreme soreness on deglutition, or rarely so, if ever, that characterized this case from the beginning all the way through, until it was so effectually and permanently cured by the second dose of Belladonna. A month, or more, before the case occurred, I had written out in full the symptoms given on a preceding page, under both Lycopodium and Lachesis, and called attention especially to the fact that neither of these remedies has the extreme soreness, or suffering, on swallowing, that mark Belladonna, Arum, Phytolacca, etc. But, notwithstanding that, I gave the Lycopodium and trusted to it twelve hours (or longer than I ought), and for the simple reason, that though I knew the distinction that should be made between the two remedies, it had not been burned into me, as it has by this experience. No one who reads this report, need, however, to make a like mistake in the future.

The beautiful characteristic of Apis, or, at least, one of them, is also brought out unmistakably by this case, namely, the sensation as though the chest, especially at the sides, had been terribly beaten, or would be crushed in, the suf-

fering is so great. Thus it is that Homœopathy, that is, the law of similia, holds us to the strictest accountability upon every point, never tolerating a mistake anywhere, if we would have the happiest and most reliable results follow our ministrations. And thus, also, is vindicated the great efficacy and superiority of the highly potentized medicines, administered in the single, or, at most, the second, dose, and that, too, beyond the power, or possibility, of either ignorance, prejudice or ridicule overturning or explaining away the results.

Supposing, when *Lycopodium* failed, I had given it in the lower potencies, or crude form, every hour or two—or *Aconite* in a similar manner, to have broken down the fever, and forced an *unnatural* perspiration, as is done daily in multitudes of cases—what then? *Neither remedy was indicated*, and no other result could have followed but a medicinal complication, that would have masked all clear indications, and prevented the really curative remedies from being found; besides adding symptoms and sufferings to an already alarming condition, that would have taken weeks, if not months, for the patient to have thrown off, even if it had not made a fatal case of it. And had I given *Belladonna*, low or crude, every hour or two, death would have undoubtedly followed speedily, as in Jahr's case, from repeated doses of *Mercurius*, quoted on a preceding page, or in those alluded to by Dr. Lippe, which he had seen. I did such things myself fifteen to twenty years ago, and saw enough of the fatalities and sorrows to have no desire or heart to see them repeated.

It should be understood that there is, no doubt, always much more danger in frequently repeating the truly indicated remedy, in any case of disease, than in so administering any remedy not actually poisonous in its attenuated form, that is not indicated. The former is like letting

the strong sunlight upon an inflamed eye, and overwhelming all its powers, whereas air, water, and many other natural agents, would have little or no violent or lasting effects upon it. The same general fact is exemplified, too, in loud sounds upon an inflamed ear, or brain, or ice-water upon an inflamed stomach. Light, or water, has little or no effect upon an inflamed ear, or light or sound upon an inflamed stomach. And thus it is that these susceptibilities run all through nature; and herein is found the explanation for the extreme sensitiveness and prompt response, of the diseased part and organism, to the exactly indicated remedy, as well as the reason for the powerful action of the latter in so minute a dose.

And, now, my dear reader, one admonition remains for you, and I have then, for the present at least, done with my task. "Go thou and do likewise." That is to say, observe most carefully, prescribe most cautiously, do all in your power to bring out into the clearest possible light the most trustworthy indications for all medicines, add more to the different lists of remedies if necessary, correct all errors of indications, etc., that I may have unwittingly or otherwise fallen into, avoid all local treatment, and *save all your cases*, if you would aid in the great work of relieving your fellow men of all the dangers and terrors of one of the most terrible of diseases.

APPENDIX.

The following paper upon "The Fibrinous Crasis," originally published by the author as an editorial in the *Homœopathic Quarterly*, ten years ago, is reproduced here for the additional evidence it furnishes; first, of the discharge and waste of albumen through all the mucous membranes, when irritated by any form of disease; secondly, that fibrin is in a relative excess in the blood in all inflammatory, as well as some other, diseases, which no other fact rationally or scientifically explains, excepting that it is left so by the loss of another constituent; and thirdly, to show what varied pathological conditions such increase gives rise to, in the efforts of the system to expel it from the blood-vessels, that it shall not coagulate in them, to take life in that way.

There will be found in the paper some repetitions of points or facts already presented in the body of this volume, but most of the morbid results, which an excess of fibrin leads to, are collated and compared in it in such a manner that it would be impossible to separate and present part of them without greatly weakening the whole paper; besides, the subject is of such great importance that it will bear many repetitions, if the truth upon all points thereof can be properly classified and fully established by that means.

THE "FIBRINOUS CRISIS."

ITS CAUSE, A LOSS OF ALBUMEN FROM THE BLOOD.

BY R. R. GREGG, M. D., BUFFALO, N. Y.

(From the *Homœopathic Quarterly*, October, 1870.)

In discussing the *Cause* of the so-called "*fibrinous crisis*," or what we prefer to call, simply, an excess of fibrin in the blood, it should be understood at the outset, that fibrin is one of the NATURAL constituents of the blood, furnished to the latter from the chyle, in its proper relative proportion to the other constituents, through entirely *healthy* action, and as fast as the completion of the digestive process introduces into the lacteals the proper materials for its organization; just the same that each and all the other constituents are introduced more or less directly into the blood, either through the lacteals or the walls of the intestinal capillaries, in their proper relative proportion, by entirely healthy digestion and absorption.

And for these reasons, among others soon to be noted, we must take issue with the claim so universally made by pathologists, physiologists and chemists, that *inflammation* causes the increase of fibrin in the blood, which is so commonly found existing in connection with that diseased action. That there may be no doubts, or misunderstanding, upon these two points, we introduce the subject with

the following quotations to elucidate the former assertion, and will then give proper attention to the second proposition.

Kirkes and Paget, in their "Manual of Physiology," say, on page 67:

"The development of fibrin appears to proceed commensurately with that of the second set of corpuscles. In the earliest state of the chyle no fibrin exists; but when chyle-corpuscles are formed, the fluid in which they float is spontaneously coagulable; and the fibrin, whose existence is thus proved, appears to increase as the chyle proceeds onwards to the blood, and passes through the lacteal glands. Yet, in the most perfect chyle and lymph the fibrin is less abundant, and coagulates less firmly than in the blood; we may therefore assume that its development, like that of the corpuscles, is perfected in the blood itself."

Carpenter also says on this point, pages 452 and 453, of his work upon Physiology:

"The chyle drawn from the lacteals that traverse the intestinal walls, contains albumen in a state of complete solution; but it is generally destitute of the power of coagulation, no fibrin being present in it. * * * * * During the passage of

the chyle through the absorbents on the intestinal edge of the mesentery, towards the mesenteric glands, its character changes in several important particulars. The presence of fibrin begins to manifest itself by the slight coagulability of the fluid when withdrawn from the vessels; and while this ingredient increases, the albumen and the oil-globules gradually diminish in amount. * * * *

* * * During the passage of the chyle through the mesenteric glands, a further increase in the proportion of fibrin takes place; and the resemblance of the fluid to blood becomes more apparent. The chyle drawn from the vessels intermediate between these and the central duct possesses a pale, reddish yellow color; and when allowed to stand for a time undergoes a regular coagulation, separating into *clot* and *serum*. * * *

The chyle from the Receptaculum and Thoracic Duct coagulates quickly, often almost instantaneously"—thus showing, of course, that the fibrin has here still more nearly approached its maximum quantity, and also the perfection it attains in the blood.

These statements by Kirkes and Paget, and by Carpenter, are essentially confirmed by all other physiologists. From all this, then, it is clear that there is a special natural function operating within the lacteal vessels, or mesenteric glands, or both, whose office it is to produce fibrin out of the normal materials furnished to the chyle by healthy digestion; and also that fibrin is an entirely *natural* product of this natural function; one constituent of the blood which is absolutely necessary to the continuance of health and even of life, or such great care would not have been taken to insure the constant repetition of its regular daily production, during the entire lifetime of the individual.

How unreasonable it seems, then, to assume and assert, as all pathologists and physiologists do, that fibrin is increased, that is, actually *produced* by inflammation, in any part of the system in which this may arise: In other words, that a *healthy* constituent of animal life can be actually organized, or produced, indiscriminately, by *unhealthy* action; and this, too, in parts of the system, or in tissues, where we have no evidence that the fibrin-producing function exists. How can such a thing be possible? A healthy, and therefore natural constituent of the blood, or a normal ingredient in any department of organic creation, produced by an *unhealthy* and *unnatural* process is an abnormality which nature must abhor; and an absurdity, upon its face, as it seems to us, for science to pretend to teach.

In saying this, we fully understand that there is great unanimity, as already stated, among all the authorities upon the subject, in asserting that fibrin really is found increased in the blood, or, in other words, in excess of its natural relative proportion to other constituents, in inflammation and inflammatory diseases. And let it be borne in mind, also, that it is the *cause* which has been assigned for this result, upon which an issue is here raised, not upon

the fact itself, as this must generally, if not always, be as claimed; for the exact conditions exist, *independently* of inflammation as such cause, to *fully* account for an increase of fibrin on perfectly rational grounds, as we shall now endeavor to prove by some of the best among these very same authors themselves. The essential condition, and one that appears sufficient to establish the whole truth in this matter, is, that there is a *loss of albumen* from the blood, at such times, which simply leaves the fibrin in a relative excess in the serum.

Lehmann tells us on page 618, vol. 1, "Physiological Chemistry," that albumen is *diminished* in the blood "in severe inflammations," and we know from what has already been so fully demonstrated several times, in this Journal, in regard to diseases of the mucous membranes, that when these are the seat of the inflammatory action, and excite any catarrhal secretions, albumen is lost from the blood; hence the former, or albumen, would be deficient in the serum, and necessarily leave *all* the other constituents, *fibrin* included, in a relative excess in the circulation, as compared with the albumen remaining, after the loss of any portion of this has been sustained, as has also been so many times shown in these pages, during the last two years. Besides, if the increase of fibrin, under such circumstances, must be referred to inflammation as the cause, in consequence of its actual production by inflammation, there is no escape from referring the increase of all the other constituents of the blood, found in excess therein at the same time, to the same cause, which would certainly be a great absurdity, in so far as some of those constituents are concerned, to say the least. Let us consider the following in this light:

"The quantity of water in the blood is always proportional to its quantity of fibrin." Lehmann, vol. 1st, page 616.

"Almost from the beginning of every acute disease" (inflammatory diseases, of course, included,) "there is an augmentation of the fats in the blood." Lehman, vol. 1st, page 620.

"Now it is a very remarkable fact, * * * * * that it is *very rarely that a considerable increase of fibrin takes place without a simultaneous increase in the colorless* blood corpuscles.*" Virchow's "Cellular Pathology," page 199.

Now, we repeat, if the increase of fibrin is properly to be ascribed to inflammatory action as *producing* it, we must also attribute the increase of the water, that of the fats, and the augmentation of the colorless corpuscles, as shown in these quotations, or of any of the other constituents, which might be found existing in excess in the blood, in inflammation (as they all are, except albumen, when this is lost), to the same cause, and it would only be carrying the idea to its legitimate conclusion to do so. This brings us to speak of pneumonia, that inflammation, or inflammatory affection, which, according to Virchow, Carpenter, Lehmann and Wood, is one of the very few diseases that shows the most striking increase, or excess, of fibrin in the blood, of any kind of diseased action. Well, now, what about the loss of albumen in this disease by which to account for such excess, instead of attributing it to inflammation? We will let the following from "Copland's Medical Dictionary," vol. 1, page 983, answer:

"Viscid, thick and adhesive sputa, containing *much* albumen, characterize acute inflammation of the lungs."

Here, then, in this simple fact, of a loss of much albumen in the expectoration, we have the most rational and com-

* The increase of colorless corpuscles, so emphasized above by Virchow, is unquestionably from a portion of the excess of red corpuscles left by the same loss of albumen that augments the fibrin, and then *decolorized* by the too watery serum, as we have already so fully pointed out on other occasions.

plete explanation of the augmentation of fibrin in the blood in pneumonia, without resorting to any bald assumptions, or speculations, to account for it; and does not this point directly to the only key, namely, loss of albumen, through some one or more of the mucous membranes, for the solution of the long and much-talked-of increase of fibrin in all inflammatory diseased action? especially when Lehmann tells us, as has already been stated, that *albumen* is always *deficient* in the blood in all cases of severe inflammation.

We are, however, by no means limited to inflammatory diseases for cases wherein fibrin is found in excess in the serum. Lehmann, vol. i., page 319, after speaking of its augmentation in the blood in such diseases, says:

"It is moreover worthy of remark that inflammation in which no fever is present, and likewise mere fevers without inflammation, augment the quantity of fibrin in the blood."

Besides, as is well known, fibrin is found in excess in the serum in albuminuria, during *all* its stages, whether acute or chronic, and this, too, independently of inflammation as its real cause, as what precedes would appear to go a long way toward proving. Though, this point, even, we are not compelled to leave to doubt, or to rest upon probabilities, notwithstanding so much of the accumulated testimony, upon the subject, appears upon its face, to be against us—and one of the most marked instances of which we will now give. Lehmann again tells us, in the paragraph next succeeding the one just given from him, that:

"In other diseases, as for instance in chlorosis, typhus, tuberculosis, Bright's disease, and carcinoma, there seems only to be an augmentation of the fibrin when an inflammatory complication supervenes; in carcinoma, however, certain observations of Popp and Haller appear to indicate that there is a decided augmentation of the fibrin, independently of any inflammatory fever."

This, certainly, is quite direct evidence that an inflammatory complication does augment the fibrin in Bright's

disease, as well as in all the other diseases named, except the last; but, if there is anything in scientific truth, the one exception destroys the entire weight of testimony of all the rest. Still as the main assertion therein is so fully supported by all other authors upon the subject, it necessarily must have become in the minds of many, if not all, a formidable point to carry by assault; but mark how easily it is *turned*, and that, too, by a fact communicated by one of the most prominent advocates of the view we are contesting, namely, by Watson himself. He says, on page 883, of his "Practice of Physic," after speaking very fully of the qualities of the *urine* in all stages and conditions of Bright's disease, that :

"In general the albumen is plentiful and almost constant in the outset of the malady. * * * * * And another fact, which it is essential for you to know and to remember, is, that, in any stage of the disease, the supervention of febrile disturbance, from local inflammation, or whatever other cause, tends to renew for the time, those qualities of the urine which belong to the early period."

If this be true, then, and there seems to be no doubt of Watson's entire conviction of its truth, from the earnest manner in which he calls attention to it, by saying it is essential "to know and to remember," we have the fact established, that there is a *renewal* of the loss of albumen in the urine, in amount corresponding with the first stage of albuminuria, whenever in *any* of its stages there arises febrile disturbance from inflammatory action. How perfectly and fully this corroborates all that we have before claimed upon this subject. Here we find a marked increase in the loss of albumen *from* the blood, at the very time in the disease, when all observers say there is an increase of fibrin *in* the blood, and assert that to inflammation such increase is due. While we reassert that this augmentation of fibrin is solely due to the increased loss of albumen, which Watson, as we

see, tells us occurs in this disease whenever inflammation arises, thereby simply leaving the former, no less than all the remaining constituents of the blood, in so much excess of what the system can use for nutritious purposes; and this fact, which this author furnishes us, is one of the most convincing evidences of the truth of our position that we have anywhere met.

If it is a fact, also, that fibrin is augmented in the serum whenever inflammation supervenes in phthisis, as all authors assert, we find it to be explained upon the same basis as the foregoing, that is, that there is an increased loss of albumen, in this case through the mucous membrane of some portion of the air passages, by catarrhal secretions, in consequence of inflammatory action arising therein. For have we not already given proof from one of the best authorities, that viscid, thick expectoration, containing much albumen, characterizes inflammation of the lungs? And if so, then is there not an increased loss of albumen in this very identical kind of expectoration, which so commonly arises whenever inflammation lights up in consumption, and at a time, too, when the surplus fibrin is found in the blood? Again we ask, do not these facts fully account for the excess of the latter, upon perfectly rational grounds, in all the cases named belonging to this class, and without resorting to any hypothesis whatever, just the same as the similar facts did the like condition, in connection with albuminuria?

In typhus, which Lehmann also says in the last quotation from him, and in dysentery, which he asserts on page 634, same vol., show an augmentation of fibrin in the blood, we have the same explanation to offer, for this very author states on pages 537 and 538, vol. 1, that "large" quantities of albumen are discharged from the bowels, in both of these diseases; while on page 618 he gives a list of diseases

in which albumen is found *deficient* in the serum, and in this list both typhus and dysentery have a prominent place.

Other diseases in which fibrin has been, or may be, found in excess in the circulation, we leave to the same rational method of solution, fully convinced that future investigation will confirm what we here claim; and show that this, like all other facts in the natural world, has a fundamental principle in nature for its basis, and is not the result of indiscriminate causes.

The proportion of fibrin to albumen, in healthy blood, is such, that the loss of each and every ounce of the latter, from the blood-vessels, would leave fifteen grains of fibrin in excess in the serum. Therefore all must see, without the necessity of entering upon any argument to prove it, that this must throw these two, and for that matter, all the remaining constituents, into a disproportion which must lead to serious consequences, and against which no provision was probably made, except the one to expel all of the excess of each from the circulation by excretion, etc., as fast as possible, until such time as the evil could be remedied by healing that mucous membrane through which the waste was sustained.

And it must be clear to all that under the economy everywhere displayed in creation, no such extremely complicated process as that of digestion, with its number and variety of organs, functions, and laws, to carefully guard each step in the work, would have been provided, unless a great necessity existed to use the products of the labors so cautiously supervised at every point, in just those proportions in which they are always found in healthy blood. Any other idea would be utterly preposterous, for if any of the constituents could be used in normal nutrition, out of the proportions originally intended, we could place no limit upon the *dis-*

proportion in which they might be used, and would have to say that the construction of such intricate machinery to manufacture so complex a vital compound as the blood, was the height of folly, when assimilation could violate, or even set at naught, all the results produced at so much cost; and that the various classes of tissues could draw all their nutrition from either albumen, fibrin, the fatty matters, or the salts, alone; and if so, why not also say from the water of the serum alone and nothing else? And in that case why have organs to prepare more than one constituent?

This brings us to a consideration of the *Effects* produced by an excess of fibrin in the blood. If this constituent is allowed to go on augmenting within the blood-vessels, from day to day, and week to week, when albumen is lost in considerable quantity daily through any of the mucous membranes which may be suffering from catarrhal irritation, the amount of it beyond what could be used for nutritious purposes, would soon become so great that it would begin to coagulate, or fibrillate, and form clots or *thrombi*,* within the blood-vessels. When this effect occurs, the clots are, of course, generally of the small size, at first, that would only clog the smaller vessels; but they may grow to larger masses, as the fibrin increases in quantity, and soon attain such dimensions that some of the larger arteries, or possibly one or more of the cavities of the heart would be blocked up entirely by them, and thus suddenly produce death, a result which sometimes actually occurs from this cause. But it is seldom, however, that so sudden a termination of life is permitted, for under the protecting care of the vital force, the excess of this agent is expelled from the

*See Virchow's very interesting account of thrombi in his work upon Cellular Pathology. Of course, the cause he assigns for them is very different from that given above, except that they have their origin in fibrin, but his description of them and their effects is none the less instructive on that account.

circulation, evidently to avoid, among other things, such an immediately fatal result. Through the successful efforts of the system in expelling this surplus, we have various conditions and diseases produced, which we will now proceed to notice.

Often, one of the first results which arises in albuminuria, from throwing off the excess of fibrin, is the excretion of this into the uriniferous tubules, where it coagulates and forms casts of the tubuli, and is then frequently discharged in that form in the urine. Sometimes, also, we find that a very similar action transpires in the lungs. The excess of fibrin, or a portion of it left by loss of albumen in the expectoration, in diseases of these organs, is occasionally excreted into the bronchial tubes, and there moulded in the ramifications of the bronchi, either as solid or tubular casts of these passages, and then expectorated, sometimes with various prolongations, corresponding with the branching of the tubes.

The membrane in *Croup* arises from the same cause. And as this is a condition, or disease, of much more frequent occurrence than the last named, we will give more details in regard to it. Virchow, on page 434, "Cellular Pathology," says of fibrinous exudations and croup:

"If we confine ourselves to those parts, where inflammations with real unquestionable fibrinous exudations do occur, we have a category nearly as limited as that of the mucous inflammations. In such a category the first place is occupied by the serous membranes proper, which even upon slight inflammatory irritation generally produce fibrin; the second place is filled by certain mucous membranes, in which, in a great number of cases, fibrinous inflammations unmistakably arise, as an aggravation out of mucous ones. Ordinary croup does not generally at its very outset manifest itself in the form of fibrinous croup; at the commencement, at a time when the danger may already be very considerable, there is often nothing else found than a mucous or mucopurulent false membrane. Not until after a certain lapse of time does the fibrinous exudation set in, and then it does so in such a manner

that we can trace the transitions in the same false membrane, and see that a certain portion is manifestly mucous, another manifestly fibrin, whilst in a third part it can no longer be affirmed with certainty whether the one or the other is present. Here, therefore, both substances appear as substitutes for one another. Where the inflammatory irritation is more violent, we see fibrin, where slight, mucus, appear."

In Copland's Med. Dic., vol. 1, page 983, we find the following, in regard to the secretions from the larynx in croup :

"A membranous or tubular substance, with thin, viscid or puriform mucus, is often discharged in croup, and consists chiefly of albumen, sometimes approaching the fibrinous state."

These quotations, then, furnish us with the evidence of all the conditions existing in croup, requisite for the construction of the membrane out of an excess of fibrin in the blood, left there by the loss of another constituent. The mucous secretions, and even the muco-purulent false membrane, referred to by Virchow, as occurring in the early period of this disease, before the fibrinous membrane is created, and which we all know to take place as he describes, waste albumen as their chief organic constituent, even if there were no pure albumen in them, as we long since proved to be the case with *all* mucous discharges. Besides which, we have the direct evidence in this very quotation from Copland, that such discharges "consist chiefly of albumen" in the first instance, and then approach the fibrinous state. In other words, as we claim, there must necessarily first be a loss of albumen in a more or less pure state, by the mucous secretions which occur in the early period of membranous croup, and not until this takes place can the fibrin be in excess, to be poured out in a fibrinous exudation. But when it is brought into such excess, then it would be secreted along with mucus, and be mingled in it, producing a membrane of both characters about equal, or predominating in the one or the other, or

in a layer by itself, as the case might be, and as the quantity of fibrin thus disposed of might regulate, even to the creating of an entirely fibrinous membrane. How well this accords with Virchow's assertion, that "not until after a certain lapse of time does the fibrinous exudation set in;" that is, not until sufficient albumen has been lost, in the preceding albuminous discharges, to throw the fibrin into such excess that the system cannot dispose of it, in any other way, in each individual case, than by pouring it out as an exudation upon the inner surface of the larynx, where the vital force has already been partly overcome by disease, there to organize or fibrillate into a membrane, or be expectorated in a more fluid form, as circumstances favor. In this sense, and in this alone, as it appears to us, do fibrinous inflammations, or more properly exudations, "arise as an aggravation out of mucous ones," as Virchow claims. And, of course, in our explanation of the origin or cause of the membrane, the fact that the more violent the inflammatory irritation, the more purely fibrinous it would be, is as fully and more naturally covered than it is by Virchow's theory that fibrin thus exuded is the *product* of the local inflammation, even provided there was any basis whatever in truth for this, but which we have already shown there cannot be.

There are some good reasons for believing, furthermore, that occasionally the excess of fibrin may be exuded upon the mucous membrane of the larynx, causing membranous croup, when albumen is lost from some of the other mucous membranes than that upon which the exudation forms, in a similar manner to its being expelled through or upon the serous membranes, or into fibrous tumors, and there organized, as we will soon show is sometimes the case, when albumen is lost through a more or less remote point.

The foregoing general facts in regard to membranous

croup apply equally well to *Diphtheria*. In this disease, also, there are mucous and albuminous discharges *preceding* the formation of the membrane upon the tonsils or other parts of the fauces, which would give rise to the excess of fibrin, out of which the membrane in these cases is likewise wholly or in part formed. And, again, cases of diphtheria are quite common where albumen is discharged by the kidneys in the urine, thus adding to the surplus fibrin left by the mucous discharges from the throat, thereby complicating the case and greatly enhancing the danger by acute albuminuria. This leads us to speak, also, of the ulcerated or malignant sore throat, of scarlatina, as very similar to, if not identical with, diphtheria. When such complication arises, it leads to more or less mucous discharges from, and membranous exudation in, the throat; and the urine, in scarlet fever, as all must know, is often albuminous, thus leaving this constituent so much more deficient in the serum, and causing a still greater excess of fibrin, which no doubt may in some of these cases aid in increasing the amount of the membrane, by being poured out into the fauces, and there organized.

In view of these alleged facts, which we confidently believe the most thorough investigation will only serve to establish to the fullest extent claimed, how wrong and even dangerous must be the local treatment of diphtheria, and membranous croup, by cauterizing the fauces, by pungent gargles, and all other *irritating* methods of other schools of medicine, or any part thereof, adopted by some Homœopathic physicians. All medicinal, or even mechanical, irritation of the mucous membrane of the parts, by whatever agents employed, must *necessarily* result in a greater waste of albumen, and the leaving a greater excess of fibrin than is there as a direct effect of the disease. Then, as this is the main cause of the immediately alarming symptoms, and

conditions, in all these cases, what shall be said of that treatment which can only result in greatly increasing, for further deposit, the very agent which so much effort is made to remove? What an endorsement this becomes of the course pursued by the true Homœopathician who eschews all local treatment, and relies upon his specific remedies; and that, too, by a great fact of which he little dreamed.

The fibrinous exudations into both the small and large intestines, and the formation, in consequence, of false membranes therein, no less than the like results upon other mucous membranes not mentioned, are, of course, to be explained upon the same general principles, as membranous croup and diphtheria.

We next consider those cases in which a greater or less portion of the surplus fibrin is expelled from the circulation through, or upon, the free surface of serous membranes. The *false* membranes that form on these surfaces are, according to all the authorities we have consulted upon the subject, far more commonly, if not always, fibrinous in character. It will be remembered that Virchow, in the last quotation given from him, in speaking of fibrinous exudations, says: "The serous membranes, * * * * even upon slight inflammatory irritation, generally produce fibrin." That these exudations, and false membranes if they come to that, are from an excess of fibrin in the blood, in all cases of inflammation of the serous surfaces caused by disease, and not a product of the local inflammation, as Virchow asserts in this, no less than in other cases, we will now endeavor to prove.

In the outset of this effort, we must again revert to the fact, so fully established in the preceding pages, namely, that albumen is deficient in the blood in all severe inflammations; hence it must be in those of the serous membranes, for these are classed among the most serious in

character. If, then, such is the fact, here is ample ground to account for the augmentation of the one constituent, as the abstraction of a portion of another left it so. But we do not require to rest upon this proof. To show this, we take pleurisy as an example. All know how liable this disease is to arise in connection with pneumonia and phthisis, often greatly complicating these; and not only this, but it occurs very commonly in those of a consumptive predisposition, while there is yet no tuberculous disease of the lungs themselves. Well, in these cases, in which false membranes are so common, we proved last year that albumen is deficient in the serum, and just how it came to be deficient, namely, by catarrhal irritation of some of the mucous membranes, and its waste thereby in the expectoration, or other mucus discharges, while chemical examinations have shown fibrin in excess in the blood in just these very cases. Therefore, is it not rational to claim, indeed, is it not, in all candor and common sense, unavoidable to think, that all fibrinous exudations in such cases must arise from the efforts of the vital force to expel the excess of this constituent from the blood, through the pleura, and thereby avoid the much more immediately fatal effects which we have shown must commonly result from thrombi forming within the vessels, out of the constantly accumulating fibrin, if this were not expelled? And, as pleurisy, arising under such circumstances, embraces by far the greater number of cases of this malady that occur, we think it reasonable to give it as a type of all those with fibrinous exudations upon serous surfaces, which are not of a traumatic character. Before leaving this point, it would be as well, perhaps, to refer to the fact that in some cases the excess of water, left in the blood by the same cause, is also expelled through the pleura, along with the fibrin, into the pleural sac, causing hydrothorax; and that the latter, or

fibrin, in such cases, does not always organize into a membrane, but sometimes coagulates wholly, or in part, into flakes, which are found floating in the dropsical fluid.

Pericarditis and peritonitis, with fibrinous exudations, when they do not arise from mechanical causes, we refer to the same general fact, of excess of fibrin in the serum, for explanation. Watson, in speaking of peritonitis, on page 729, "Practice of Physic," says of the effects of inflammation upon the three principal serous membranes :

"Like the serous membranes in general, the peritoneum is very *ready* to take on inflammation, upon the operation of certain exciting causes. Acute inflammation, beginning in one spot, is almost sure to transfer itself to any other spot that happens to lie in contact with the first; and is very apt to extend itself rapidly to the whole membrane. The inflammation tends to the effusion of serum, and of coagulable lymph; it is of the adhesive kind; and its effects are those of distending the peritoneal cavity with fluid—or of gluing its opposite surfaces together, so as to obliterate that cavity—or of forming partial attachments. In all these respects the analogy between inflammation of the peritoneum and inflammation of the serous membranes of the thorax—the pleura and the pericardium—is perfect."

Hence, as like results must come from like, or more or less similar causes, and as we have the fact furnished by Lehmann, of a deficiency of albumen in the blood in severe inflammations, and the still other fact of an excess of fibrin in the serum in all inflammatory action, we are certainly warranted in attributing the fibrinous exudations of pericarditis and peritonitis to the same immediate cause that we did pleuritis, namely, surplus fibrin poured out from the blood.

We have, moreover, seen some evidences, independently of the general law of diseases of the serous membranes, and the more marked excess of fibrin in these than in almost any other malady, that rheumatism, or inflammation of the synovial or serous membranes of the joints, may be con-

nected more or less directly with loss of albumen, through some of the mucous membranes, for its cause. The first point we cite in this connection, and one, we think, suggestive, is the following statement by Wood, vol. 2d, page 544, "Practice of Medicine." Under the head of Bright's disease, and its associated disorders, he says:

"The British writers upon Bright's disease speak of a strong tendency which it has exhibited, within their observation, to favor the development of inflammation in other parts of the body, especially the serous membranes. The pleura, peritoncum and pericardium are attacked, in relation to frequency, in the order in which they are here placed; and the arachnoid is sometimes affected. * * * Chronic rheumatism is said to be very frequent and obstinate in the chronic disease of the kidney."

Another point is the fact, stated also by Wood, and familiar to all practitioners, that the urine, more especially in acute rheumatism, is almost always scanty and high colored, just the condition and appearance of this, that we find in acute albuminaria, when albumen is generally the most profusely discharged from the system in the latter disease. A still stronger and more direct point, however, is the following from Copland's "Medical Dictionary," vol. 3d, page 677. In speaking of "the urine in rheumatism," he says:

"In eighteen cases in which the urine was examined by Becquerel, it always presented the characters usually observed in inflammation, as long as the fever continued. * * * Albumen was detected in seven of the eighteen cases."

Then we all know that some of the other mucous membranes, besides that of the kidneys, are also very frequently more or less irritated, or diseased, in rheumatism. This would waste albumen from the blood the same as does Bright's disease, and thus account for its deficiency there, and the augmentation of fibrin in those cases where the former did not find an outlet through the kidneys. But we leave it to future investigation to settle this point, either

for or against the views here advanced, as the interests of truth may demand.

Before leaving the discussion of inflammation of the serous membranes, we will raise one question more, which future research must also answer, and that is, has the excess of fibrin, which we have shown to exist in the blood, and to be expelled therefrom in fibrinous exudations through the serous membranes in all of these various cases, anything to do with *causing* the inflammation thereof? The *excess* of this constituent cannot reasonably be regarded in any other light than as foreign matter in the blood, especially when we reflect upon the immediate fatal results its undue accumulation in the circulation would, and sometimes does, lead to, through thrombosis, and when we consider also the various efforts which we have shown the system puts forth to expel it from the blood-vessels. But whether the excess of it is foreign matter in the *blood* or not, it must be to the free surface of the serous membranes, when it is expelled from the vessels upon that surface, and there coagulates or organizes as a false membrane. And if foreign then, it would certainly be liable to aggravate the inflammation (if it did not cause it in the first place), while it was exuding through the membrane, and until it became organized and covered the serous surface, or became more or less incorporated with this, or until this became more or less changed by the new order of things, and accommodated itself to the circumstances in which it is now placed. One thing pointing to this is the statement cited from Wood, of the tendency of Bright's disease, according to the British writers, to favor the development of inflammation in the serous membranes. If such be the case, the cause of this inflammation becomes invested with a peculiar interest here.

That inflammation, in any part of the system, is always

caused by the deposit or presence of foreign matter of some kind in the living tissues, and that this is probably the only cause of inflammation seems self-evident to us, and we hope for the leisure to endeavor to prove it at some future time. Well, then, the question occurs, what foreign matter is the cause of the pleuritis, peritonitis and pericarditis arising from, or in connection with, albuminuria? It must, in this view, be some one or more of the constituents of the blood left in excess in the vessels, by loss of albumen through the kidneys, and deposited in the serous membranes, but none of these certainly appear to be present in such profusion, if at all, in the inflamed part as fibrin, except when a portion, or all the excess of water, is also poured out through the membrane at the same time — a result that happens in only a part of these cases. But as fibrin is *always* present, in greater or less quantity, in such cases, and is withal, as we have already shown, a foreign matter deposited in one of the most sensitive of living structures, is there not reason to think that it is the cause of the inflammation? Urea cannot be the cause of it in all instances, if it is in any, notwithstanding the claim by so many authors that this is the great disturber of the general system in Bright's disease, for the kidneys must perform their functions well, and prevent the accumulation of urea in the blood in many cases of pleuritis occurring idiopathically, or arising in connection with pneumonia and consumption, hence it cannot be the cause here; therefore we must fall back upon something else as the cause, and again we ask, what more liable to be this than the *excess* of fibrin, which is always present?

One of the *curious* facts which we have met in our researches upon this subject, is that the surplus fibrin of the blood, or a portion of it, in cases of tuberculous deposits, or even in common abscesses, is poured out, or secreted,

from the vessels, in many, if not in all, instances, into the tissues around the tuberculous mass, or gathering abscess, and there organizes and finally consolidates and forms an impermeable wall or lining for the cavity, which results from the suppuration and discharge of the tuberculous or other matter. The proof of this we find in the following from Carpenter's *Physiology*, page 203. After speaking in part of the offices of fibrin, he then refers to the increased plasticity of the blood by its augmentation, and says :

"This increased plasticity of the blood, however, may frequently be regarded in the light of an 'effort of nature' to antagonize the evil consequences of that depression, or positive destruction of the vitality of the solid tissues which seems to form an essential part of the inflammatory condition ; and thus it is that whilst the central part of a mass of tissue, in which the inflammation has been most intense, suffers complete death, and is carried away in the suppurative process, the peripheral part, in which the violence of the inflammation has been less, becomes infiltrated with plastic matter poured out from the blood, and forms the solid and impermeable wall of the abscess."

As the phrase "plastic matter" is used by this author synonymously with fibrin, which is shown more especially by what precedes the above quoted language, we have the fact established that the false membrane, if we may so speak, or dense tissue which forms the walls of an abscess, is fibrin ; and being this, it must be from an excess of it in the blood of these patients, thrown out with or around the excess of some of the other constituents of the blood, which are also expelled there to get them out of the vessels—the former to protect the organ or tissues, in a measure, from the greater ravages the latter might otherwise commit. In this way, and by a secretion of some of the surplus fibrin from the blood, through the walls of the abscess, after this had secured its first discharge, there would be fibrin in the pus, without its exudation being

the source of pus, about which there appears to have been some controversy. The walls of the fistulous outlets of deep ulcers are, undoubtedly, also, of the same material.

The so-called fibrous degeneration, and all real fibrous tumors, no doubt have their origin, too, in excess of fibrin. Of the first of these, Jones and Sieveking, "Pathological Anatomy," page 164, say:

"*Fibrous Degeneration* is somewhat allied to Induration, and is probably connected with the existence of a fibrinous crasis. It occasions the gradual thickening of serous membranes and of areolar tissue by the formation of an imperfect kind of fibrous structure. This may attain a considerable thickness, and then by its dead white aspect resemble very much a layer of cartilage. The capsule of the spleen is sometimes thus altered, and has been wrongly said to have undergone cartilagification, for there is no real similarity between this substance and cartilage. The white patches formed on the surface of the pericardium, and in the capsule of the liver, are produced in this manner, and so is also that thickening of the Glissonian sheaths, which give rise in many cases to cirrhosis. The fibers are probably formed, in part, directly out of the effused blastema, in part, also by nuclei, developing short fibers, which unite, as Henle has described. This latter mode of formation is often observed in the spleen. The chief difference between induration and fibrous degeneration consist in this, that in the former, a notable quantity of blastema is effused, which becomes the indurated matter, and compresses and atrophies the adjacent texture; in the latter, there seems to be scarce any perceptible exudation, as it takes place slowly, and passes at once into the condition of fiber. Induration may affect any tissue, while fibrous degeneration is chiefly seen in membranes."

Of *fibrous tumors* the same authors say, page 167: "These tumors develop themselves in very different parts of the body, usually in such as normally contain much fibrous tissue." That is, those parts to which fibrin is the most naturally directed in the normal condition of nutrition, are the parts to which the excess of it would be most liable to be directed, for its expulsion from the circulation; hence the development of the tumors in those parts natur-

ally containing the most fibrous tissue. These authors further say, on page 168: "Melanic matter is sometimes deposited abundantly in fibrous tumors"—a statement showing that more or less of the hæmatin dissolved out of the corpuscles, which are left in excess by the same cause, as we have already proved so fully in this Journal, is deposited in such cases with the excess of fibrin. They furthermore give instances on the same and next page of such tumors containing a greater or less amount of fatty or oily matter. Then when we state the fact, which is susceptible of as ample proof as any other point in this most fruitful field of scientific pathology, that the fatty matters are always found in excess in the blood when albumen is deficient and fibrin augmented, it shows, of course, that the excess of such matters is also thrown out along with the fibrin and the hæmatin to get rid of it from the circulation, and it becomes thereby incorporated more or less intimately with them in the morbid growth. What can this mean, then, but that there is one explanation for it all, and one only, and that is, a necessity to get rid of such excess of each from the blood-vessels, in order to avoid much more serious or even immediately fatal results by their retention within the circulation, and poisoning the very fountains of life itself? And if either one of these constituents is thrown out into such tumors to rid the blood of its excess, and by that means prevent worse consequences, it is certainly clear that the others are there for the same reason. And, again, if they are all in excess in the blood at the same time, as can be proved beyond question, what can possibly have brought about such a result but a loss of albumen through some mucous surface leaving them so? Certainly it will not be claimed that inflammation increases the fatty matters in the blood, and also the hæmatin, freed from the corpuscles, as is done in regard to the fibrin, a

point which has already been discussed in this paper in regard to the water, the fatty matters, and the colorless corpuscles.

We pass now, for a few moments, from the foregoing details to more general facts belonging in this same great category of pathological truths. As we must again, for the present, and the second time, abandon this work on account of the threatening state of our health, we assure the profession, under the most profound conviction of the responsibility that rests upon us in making the assertion, that the proof is almost unlimited, certainly of the most ample proportions, going to establish the *fact*, that whenever albumen is lost from the serum through any of the mucous membranes, in any of the catarrhal discharges therefrom, all the remaining constituents of the blood, besides the fibrin and the corpuscles, are left, the same as these, in a relative excess, in the blood-vessels, as compared with the albumen remaining; that apparently no part of this excess is used in normal nutrition, therefore it becomes the same as foreign matter in the circulation, which often calls for the greatest efforts being put forth by the vital power to rid the system of its disturbing influence; and the proof is equally ample as to the conditions and diseases which all these produce as they are being expelled at once and entirely from the body, through the various outlets for refuse matter, or when deposited in living tissues.

In vol. 1st of this journal we proved beyond the possibility of successful contradiction, as it seems to us, that the blood corpuscles left in excess in the vessels by a loss of albumen in the expectoration, or other mucus discharges of tuberculous subjects, are distended to the globular form, and *decolorized* under the direction of endosmosis, by the action upon them of the excess of water left in the blood by the same cause, and that such corpuscles are then de-

posited in living tissues, when they gradually give up the water that has wrought these changes in them, shrivel in consequence into "angular," "jagged," and other distorted shapes, when they are known as tuberculous corpuscles, and that the latter have no other origin but this: and now we have given proof which seems fully as clear and complete as to the cause of the so-called "fibrinous crisis" (more properly, a relative increase of fibrin in the serum), and the effects which this produces.

In addition to this, we have accumulated upon each of the remaining constituents, an equally formidable array of *facts*, that have long been known, but which have nevertheless always hitherto stood isolated, and not thought to have any special connection with each other; such facts proving that the blood is left "poor," "thin," "watery," in all cases of persistent mucus discharges from any organ lined with mucous membrane, because of the excess of water left therein by the loss of albumen, and that this watery condition of the blood is the cause of most, if not all, forms of diuresis arising from diseased action, of unnatural perspirations, whether in sleep or awake, such as "night sweats," etc., and of all kinds of dropsies not arising from mechanical obstructions to the circulation; that the salts are found in excess in like cases and are the cause of the gravel, and of all forms of calculi, whether arthritic, biliary, intestinal, pulmonary, urinary, etc., of unnatural enlargement of bones, osseous tumors, and the like; and that the excess of fatty matters leads to all forms of fatty growths, to the so-called fatty degeneration of organs and tissues, to the oily discharges in the urine, and to the evacuation of fatty matters from the intestinal canal when this arises from abnormal conditions.

If all that precedes is true, then this whole subject becomes invested with a *practical* importance, scarcely second

to anything else, save Hahnemann's discoveries, that has ever preceded it in the domain of medicine. For it must be seen from this that the *cure*, and the only *radical* cure, of all these multifarious conditions and diseases, from the simplest case of a watery state of the blood and of unnatural perspiration, or of diuresis arising therefrom, all the way up through all the dropsies, through all the effects we have pointed out herein as resulting from the excess of fibrin, through all fatty degeneration, fatty tumors, and the like, through all the calculous diseases, abnormal enlargement of any of the bones, bony tumors, etc., to and through every species of tuberculosis and attending sufferings; the only radical cure of all these, we repeat, consists simply in *healing* the mucous membranes, and thus stopping the further loss of albumen, thereby preventing the other constituents from being brought into excess; and so at one master-stroke annihilate the cause of full three-fourths of all the diseases with which mankind are afflicted. And, furthermore, we believe, indeed, we have gathered much proof going to show that many, if not all, the various forms of cancerous growths may possibly be reached in the same way.

But what can do this great work excepting specific Homœopathy? Certainly all expectorants, emetics, cathartics, diuretics, etc., etc., and all local treatment of any mucous membrane by cauterizing, or by irritating injections, for whatever purpose employed, and so on to the end of the chapter, can only serve to increase the irritation already existing upon these surfaces, and cause a still greater loss of albumen, and a marked aggravation of some one or more of the great evils which we have already shown to necessarily follow from the workings of this hydra-headed monster. It is granted that such exciting treatment sometimes affords *apparent* relief, but, as we have already given the proof in abundance upon other occasions, this appar-

ent relief is at the expense of driving the disease to still more vital parts or organs of the system, where it must sooner or later develop itself into a still more inveterate or dangerous malady. The only exceptions to this are the cases where the *vis medicatrix naturæ* is strong enough to cure the patient in spite of such treatment.

Now we see upon what complete yet exacting principles nature operates, within the animal system, in all these cases, and how she cries aloud to the medical profession to stop all the irritating methods named, which she is constantly rebelling against through the worse than useless sufferings thereby given the patient; and adopt a system of treatment which shall strike at once at the root of the evil, by healing the mucous membranes, when all effects above pointed out must necessarily and speedily cease—as there would then no longer be an excess of any constituent left by which their continuance could be maintained.

And, in conclusion, we must ask if there is not enough in the multitude of facts given upon this most interesting subject, to show the Homœopathic school that it can go on and build upon such a basis a system of Pathology which shall be complete in all its parts, and every way worthy of our noble system of Therapeutics; its natural and indispensable handmaid and companion under all circumstances; its counterpart and complement in the fullness of its truth; a system of Pathology, in short, which shall be wholly and absolutely independent of all other schools of medicine, in showing the primary origin of many, as well as the grand combination existing between the *causes* and *relations* of all diseases; and one far more complete and *scientific* than any for which they have ever yet dared to even hope?

CORRECTIONS.

My recollections of all actual losses of patients from diphtheria are so vivid, that I depended upon them for the statements made in this volume of not having lost a case of the disease in fifteen years. To be more certain, however, upon this point, I have, since most of the work went through the press, looked over the "stubs" of death certificates, furnished the Board of Health of this city in that time, and find one death reported by me in March, 1874, as of diphtheria. But this death was really from scarlet fever, and, therefore, not against the entire correctness of my assertions, as the following facts will show :

Two or three children belonging to a German family were attacked about the same time with serious disease of the throat, attended by high fever and a very rapid pulse, which I was confident, from the first, was scarlet fever, but could not then verify. The youngest of these, a baby of five months, died in two or three days, in stupor, the rash never coming to the surface, but concentrated in the throat instead, and, from the effects of the disease there, and upon the brain, quickly took the child's life. The case, under that uncertainty, was reported as diphtheria. The other children, however, went on to an unmistakable development of scarlet fever, thus confirming my suspicions that that was the disease of which the baby died, and I have always so carried it in mind ; hence the forgetting it as being reported as diphtheria. The case will, therefore, be seen to be no exception to the truth of my statements, and must go to the credit or discredit of scarlet fever.

In one part of this work the word tonsillitis will be found to be spelled with one l, and in others correctly, that is, with two l's. This error occurred in the following manner : After my last revision of the proof of one "form," the proof-reader at the printing house where published, corrected the spelling of the word in that "form," according to Webster's Unabridged Dictionary, of the issue of 1865, and spelled it with one l. The reader is, therefore, furnished with the two methods of spelling the word, and can take his choice ; but the instance furnishes a striking commentary upon the absurdities and contradictions of much of the spelling of our language.

Other literary errors will, no doubt, be found, which cannot be explained so satisfactorily, and for these the author craves the kind indulgence of his readers.

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